Shared health Soins communs Manitoba	CARE MAPS INDEX	
	Version date: 2024-04-14	Publication date: 2024-05-15

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E08	Acute Decompensated Heart Failure	2024-03-25
E09	Respiratory Distress of Unknown Cause	2024-03-25
E10	Hypoglycemia	2024-03-25
E11	Hyperkalemia	2024-03-25
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G	**PATIENT TRANSPORT TO BE DELETED**	**CURRENT VERSION**
~~G01~~	~~Established Medication Infusions~~ Revised & renumbered (A02.3)	- - -
~~G02~~	~~Scheduled Medications~~ Revised & renumbered (A02)	- - -
~~G03~~	~~Adult Transport Team Primary Work Scope~~ Deleted	- - -
SECTION H - REFERENCES		**CURRENT VERSION**
H01	Pediatric Vital Signs	2019-03-13
H02	Left Ventricular Assist Device	2023-03-25
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H03.2	Provincial High-Alert Medications List New	2023-12-21

H04	Safe Medication Administration	2022-07-14
H05	Principles of Consent	2024-01-18
H06	Mass Casualty Triage	2022-03-01
H08	Stillbirth in the Prehospital Environment	2022-03-25
H09	National Early Warning Score - 2	2022-03-26
H11	Anticoagulant Names	2022-09-12

Shared health Soins communs Manitoba	MEDICATION STANDING ORDERS INDEX	
	Version date: 2024-05-01	Publication date: 2024-05-01
TABLE A - LISTED BY IDENTIFIER	TABLE B - LISTED ALPHABETICALLY	

IDENTIFIER	TABLE A	CURRENT VERSION
M01	Adenosine	2023-07-24
M02.1	Acetaminophen	2023-11-09
M02.2	Ibuprofen	2023-07-24
M03.1	Morphine	2023-12-13
M03.2	Fentanyl Revised	2024-04-15
M04.1	Dimenhydrinate	2023-07-24
M04.2	Metoclopramide	2023-07-24
M04.3	Ondansetron	2023-09-05
M05	Epinephrine Revised & consolidated (from M05.1, M05.2, M05.3, and M05.4)	2024-05-01
~~M05.1~~	~~Epinephrine for Anaphylaxis~~ Deleted (combined into M05)	- - -
~~M05.2~~	~~Epinephrine for Cardiac Arrest~~ Deleted (combined into M05)	- - -
~~M05.3~~	~~Epinephrine for Refractory Asthma~~ Deleted (combined into M05)	- - -
~~M05.4~~	~~Epinephrine for Croup~~ Deleted (combined into M05)	- - -
M06.1	Glucose	2023-07-20
M06.2	Dextrose	2023-12-13
M06.3	Glucagon	2023-07-20
M06.4	Glucagon Nasal Powder	2023-07-22
M07.1	Midazolam	2023-12-14
M07.2	Lorazepam	2023-07-18
M09	Furosemide	2023-07-18
M11	Naloxone	2023-07-21

M13	Hydrocortisone	2023-10-30
M14	Amiodarone	2023-12-13
M15	Salbutamol	2023-09-05
M16	Oxytocin	2023-12-13
M17	Ketamine Revised	2024-04-15
M18	Sodium Bicarbonate	2023-12-19
M21	Nitroglycerin	2023-07-25
M22	Olanzapine	2023-07-25
M24	Magnesium Sulfate	2023-12-13
M25	Lidocaine	2023-07-22
M26	Calcium Chloride	2023-12-13
M28	Tranexamic Acid	2023-07-17
M34	Haloperidol	2023-07-17
M37.1	Acetylsalicylic acid	2023-07-22
M37.2	Ticagrelor	2023-07-23
M38	Ketorolac	2023-07-24
M39	Atropine	2023-07-23
M43	Enoxaparin	2023-12-13

TABLE B	IDENTIFIER	CURRENT VERSION
Acetaminophen	M02.1	2023-11-09
Acetylsalicylic acid	M37.1	2023-07-22
Adenosine	M01	2023-07-24
Amiodarone	M14	2023-12-13
Atropine	M39	2023-07-23
Calcium Chloride	M26	2023-12-13

Dextrose	M06.2	2023-12-13
Dimenhydrinate	M04.1	2023-07-24
Enoxaparin	M43	2023-12-13
Epinephrine Revised & consolidated (from M05.1, M05.2, M05.3, and M05.4)	M05	2024-05-01
~~Epinephrine for Anaphylaxis~~ Deleted (combined into M05)	M05.1	- - -
~~Epinephrine for Cardiac Arrest~~ Deleted (combined into M05)	M05.2	- - -
~~Epinephrine for Croup~~ Deleted (combined into M05)	M05.4	- - -
~~Epinephrine for Refractory Asthma~~ Deleted (combined into M05)	M05.3	- - -
Fentanyl Revised	M03.2	2024-04-15
Furosemide	M09	2023-07-18
Glucagon	M06.3	2023-07-20
Glucagon Nasal Powder	M06.4	2023-07-22
Glucose	M06.1	2023-07-20
Haloperidol	M34	2023-07-17
Hydrocortisone	M13	2023-10-30
Ibuprofen	M02.2	2023-07-24
Ketamine Revised	M17	2024-04-15
Ketorolac	M38	2023-07-24
Lidocaine	M25	2023-07-22
Lorazepam	M07.2	2023-07-18
Magnesium Sulfate	M24	2023-12-13
Metoclopramide	M04.2	2023-07-24
Midazolam	M07.1	2023-12-14
Morphine	M03.1	2023-12-13
Naloxone	M11	2023-07-21
Nitroglycerin	M21	2023-07-25

Olanzapine	M22	2023-07-25
Ondansetron	M04.3	2023-09-05
Oxytocin	M16	2023-12-13
Salbutamol	M15	2023-09-05
Sodium Bicarbonate	M18	2023-12-19
Ticagrelor	M37.2	2023-07-23
Tranexamic Acid	M28	2023-07-17

Shared health Soins communs Manitoba	A01 - EMERGENCY MEDICAL SERVICE OVERVIEW
	POLICY
Version date: 2024-04-14	Effective Date: 2024-05-15 (0700 hrs.)

SECTION A - DEFINITIONS

NOTE: The following definitions apply for the operational purposes of Shared Health Emergency Response Service (ERS). They may vary from, and are not intended to replace, the lawful definitions as outlined in the Regulated Health Professions Act (RHPA), the College of Paramedics of Manitoba (CPMB) General Regulation, and CPMB practice directions.

1. **PARAMEDIC:** All emergency medical responders (EMR) and paramedics employed by ERS, as well as those employed by service providers operating under service purchase agreements (SPA) with ERS.
2. **RESERVED ACT:** A medical procedure or function that can only be performed by a regulated health professional.
3. **SCOPE OF PRACTICE:** The set of reserved acts that a paramedic is lawfully able to perform, as defined by the College of CPMB General Regulation.
4. **SCOPE OF WORK:** The set of medical functions / procedures that may be performed and the medications that may be administered and managed by a paramedic when on-duty under an employment agreement with ERS or one of its SPA providers. It is established by ERS leadership and detailed in the ERS care maps and medication orders.
5. **CARE MAPS:** These include clinical policies and procedures, destination protocols, and patient care caps.
    a. **POLICIES & PROCEDURES:** Section A contains directives that a paramedic must follow when providing clinical care to all ERS patients.
    b. **DESTINATION:** Section B contains the protocols for determining the transport destination for all ERS patient. These include a combination of guidelines that may be followed and directives that must be followed.
    c. **CARE MAP**: Sections C through F contain guidelines and directives for the provision of medical care to all ERS patients. These include reserved acts as well as medical functions that are not reserved acts.
6. **MEDICATIONS**: Section M contains the directives that must be followed when administering the various ERS medications. These are standing orders from ERS medical directors as defined under section 4.8 of the CPMB General Regulation.
7. **ERS WORK SCOPES:** The ERS-specific work scopes are based on the paramedic's employment classification with ERS and apply regardless of the individual's registration level with the CPMB, professional scope of practice, or scope of work under another employer.
    a. **BASIC WORK SCOPE**: The procedures that may be performed and medications that can be administered by an individual employed as an emergency medical responder (EMR) or medical first responder (MFR). This requires College registration at the EMR level or above.
    b. **PRIMARY WORK SCOPE:** The procedures that may be performed and medications that can be administered by an individual employed as a primary care paramedic (PCP). This requires College registration at the PCP level or above.

c. **INTERMEDIATE WORK SCOPE:** The procedures that may be performed and medications that can be administered by an individual employed as an intermediate care provider (ICP). This requires registration with the CPMB at or above the level of primary care paramedic with the intermediate care notation (PCP-IC).

8. **WORK SCOPE IDENTIFIERS:** The work scopes are indicated using three-letter identifiers as follows (appendix A). Note that where there is no identifier, the action can be performed by a paramedic employed at any level.

   a. **EMR:** This action is performed only by an EMR, although it is within the work scope of all other paramedics.

   b. **PCP:** This action can be performed by a PCP or PCP-IC.

   c. **ICP:** This action can be performed by an PCP-IC only.

9. **DELEGATION OF A RESERVED ACT:** Under exigent circumstances, a paramedic with the primary or intermediate work scope may receive authorization from an ERS physician, ERS-affiliated physician, or ERS advanced care paramedic (ACP) to perform a reserved act that is not within their usual work scope, by way of a delegation. The reserved act must be within the receiving paramedic's scope of practice and competency.

   An EMR cannot receive a delegation to perform a reserved act outside of their usual work scope.

10. **STANDING ORDER:** Under the CPMB General Regulation, the ability to administer a medication by a particular route is part of the paramedic's practice scope. However, a paramedic requires a physician order to administer any specific medication. Section M contains the medication standing orders from ERS medical leadership that authorize the administration of specific medications based upon the paramedic's designated scope of work.

11. **VARYING A STANDING ORDER:** In a situation where a medication standing order is insufficient to meet the clinical needs of the patient, a physician may authorize a paramedic to vary from the standing order on a one-time basis, by way of delegation. An ACP cannot authorize the administration of a medication and cannot give a delegation to vary a medication order.

    An EMR cannot deviate from a medication standing order, even with a subsequent physician order.

12. Policies and destination protocols apply to all age groups unless otherwise specified. Most care maps will apply to all age groups. Some are unique to a particular age group such as E01 - CROUP (6 years & under) or E04 - ACS & STEMI (17 years & older). Some are relevant to a certain condition, such as C08 - LVAD or D02 - DELIVERY, rather than a particular age. If not specified, the following definitions will apply:

    a. **ADULT:** Seventeen (17) years and older

    b. **ADOLESCENT:** Ten (10) up to seventeen (17) years

    c. **CHILD:** One (1) up to ten (10) years

    d. **INFANT:** Three (3) days post-partum up to twelve (12) months

    e. **NEWBORN:** Birth up to three (3) days post-partum

13. **KNOWN**: A clinical condition shall be considered *known* to be present if based on all currently available information an average paramedic should reasonably conclude that the condition is present.

14. **SUSPECTED:** A clinical condition shall be considered *suspected* to be present if based on all currently available information an average paramedic should reasonably conclude that the condition is more likely than not the cause of a patient's presentation.

15. **CONSIDER:** Paramedics will consider performing an action by analyzing all currently available information to determine if that action may be more likely than not to benefit the patient given the clinical circumstances.

16. **CLOSEST:** An emergency department (ED) or health care facility (HCF) will be considered closest if it has the shortest estimated transport *time* from the patient's current location, regardless of the RHA boundaries or the Provincial

border. When two facilities have similar transport times, the closest will be considered that which has the shortest estimated transport *distance*.

17. **OPEN:** An ED will be considered open and able to accept patients transported by EMS if it is accepting patients who walk-in or self-present without EMS.
18. **HEALTH CARE PROXY:** An individual who has been appointed to make medical decisions for a patient if the patient is unable to do so (also referred to as a proxy, or representative). This may be indicated in a written document such as a living will or health care directive. In the absence of appropriate documentation, a paramedic may follow the directions of an individual who indicates that they have been designated as the proxy if they reasonably believe the individual to be truthful.
19. **SUBSTITUTE DECISION MAKER:** In the absence of a proxy, the following hierarchy of individuals who may act as a on behalf of the patient:
    a. Spouse or common-law partner
    b. Parent with primary care and control
    c. Parent with legal access
    d. Child
    e. Sibling
    f. Other first degree relative

SECTION B - GENERAL

1. All patient care must be provided in accordance with the standards of practice established by the CPMB and the policies, procedures, protocols, care maps, and medication orders established by ERS.
2. Paramedics will operate in good faith and provide care in accordance with the patient's best interests and will work collaboratively with other health care providers in the shared care model.
3. *Informed* consent from the patient or their proxy is required for any significant intervention. Consent may be obtained verbally unless specified otherwise. In critical circumstances where consent cannot be obtained, the principle of implied consent will apply. Paramedics must abide by a known health care directive (or advanced care plan).

SECTION C - ASSESSMENT

1. Paramedics must always utilize personal protective equipment (PPE) and follow appropriate body substance isolation (BSI) procedures; they must comply with all Shared Health policies and procedures for infection prevention control and post exposure care.
2. An initial *scene assessment* must be conducted, including an evaluation of safety, the need for additional EMS resources, and the need for assistance from other agencies or services (e.g., law enforcement). If additional resources are anticipated to be required, paramedics should request these as soon as possible.
3. A *primary assessment* must be conducted efficiently and systematically on every patient. Steps may be performed sequentially or concurrently, depending upon the patient's condition and on-scene resources. Paramedics should repeat the primary assessment whenever there is a significant change in the patient's condition.
4. For victims of major trauma, a *rapid trauma survey* including a screen for life-threatening injuries should precede the secondary assessment.

5. If an immediate life-threatening condition is identified or suspected, appropriate *life-saving interventions* must be promptly initiated before continuing the assessment. With sufficient resources on the scene, further assessment may be performed concurrently with life-saving procedures. In the event that a life-threatening condition is also time-sensitive (e.g., major trauma), certain interventions (e.g. vascular access) should be initiated during transport.
6. After immediate life-threatening conditions are managed, paramedics will conduct a *secondary assessment* that includes an appropriate history, collateral information, details of the incident, and a relevant physical examination. The examination may be generalized or focused as indicated by the patient's condition or complaint(s).
7. Unless otherwise specified, at least one *core set of vital signs* including heart rate, respiratory rate, blood pressure and oxygen saturation must be performed for every patient, unless precluded by resuscitative or other life-saving measures. Temperature, Glasgow coma scale (GCS) and blood glucose measurements will be obtained as required. Vital signs must be repeated at appropriate intervals based upon the patient's chief compliant and stability.
8. Appropriate monitoring and interventions will be performed as dictated by the patient's complaint(s) or condition.
9. If a life-threatening or time-sensitive condition is not identified or suspected, further assessment can be initiated or performed on-scene or during transport as appropriate.

SECTION D - MANAGEMENT

1. Paramedics must consider the patient's complaint(s), clinical condition, transport duration and potential for deterioration during transport when deciding to perform a medical function in the field. Medical functions that are more appropriately performed in a health care facility should be deferred, where safe and appropriate.
2. If a paramedic initiates or establishes a medical function (e.g., traction splinting, vascular access), they remain responsible for ongoing management until care is transferred to another appropriate health care provider or the intervention is discontinued.
3. Management of subjective symptoms (e.g., pain, nausea) should be carried out using pharmacologic and, where appropriate, non-pharmacologic measures (e.g., splinting of injuries) in accordance with the paramedic's clinical judgment as to the cause and the patient's stability. The patient's subjective report as to the severity of a symptom (e.g., pain severity scale) must be used to inform management decisions.
4. Unstable patients should not receive anything by mouth (NPO), except for essential medications.

SECTION F - TRANSPORT

1. The timing and urgency of transport, and the complexity and frequency of monitoring during transport, will be based on the patient's condition or complaint(s). For time sensitive situations (e.g., acute stroke) paramedics should consider strategies (e.g., air intercept) that will expedite arrival at the destination.
2. Paramedics will transport as per the published destination and bypass protocols (section B).

   Paramedics may consult on-line medical support (OLMS) at any time for assistance with destination decision making within the established protocols.
3. If it is known or reasonably anticipated that a medical function beyond the paramedic's practice scope may be required during an interfacility transport (IFT), paramedics should request that an appropriate health care provider (HCP) who can perform the function (e.g., newborn resuscitation when transporting a patient in active labor) accompany the patient.

4. Non-clinical issues such as road and weather conditions that can impact patient, provider and public safety will be at the discretion of the vehicle operator.
5. Paramedics must transport at safe vehicular speeds and comply with all aspects of the Highway Traffic Act. All patients must be appropriately positioned, and all occupants must be appropriately secured prior to transport. Minors should be transported in the company of a parent or legal guardian.
6. Paramedics will transport as per established destination protocols. The on-line medical support (OLMS) physician or on-call superintendent / supervisor (OCS) may be contacted for assistance regarding destination decision making.

SECTION G - DOCUMENTATION & TRANSFER OF CARE

1. Except for mass casualty situations, paramedics will only transfer the ongoing care of the patient to an appropriate HCP whose scope of work allows them to assume the transfer of care.
2. Paramedics must document in a legible fashion all relevant clinical information on the patient care record (PCR). Accepted medical terminology should be used and abbreviations should be avoided.

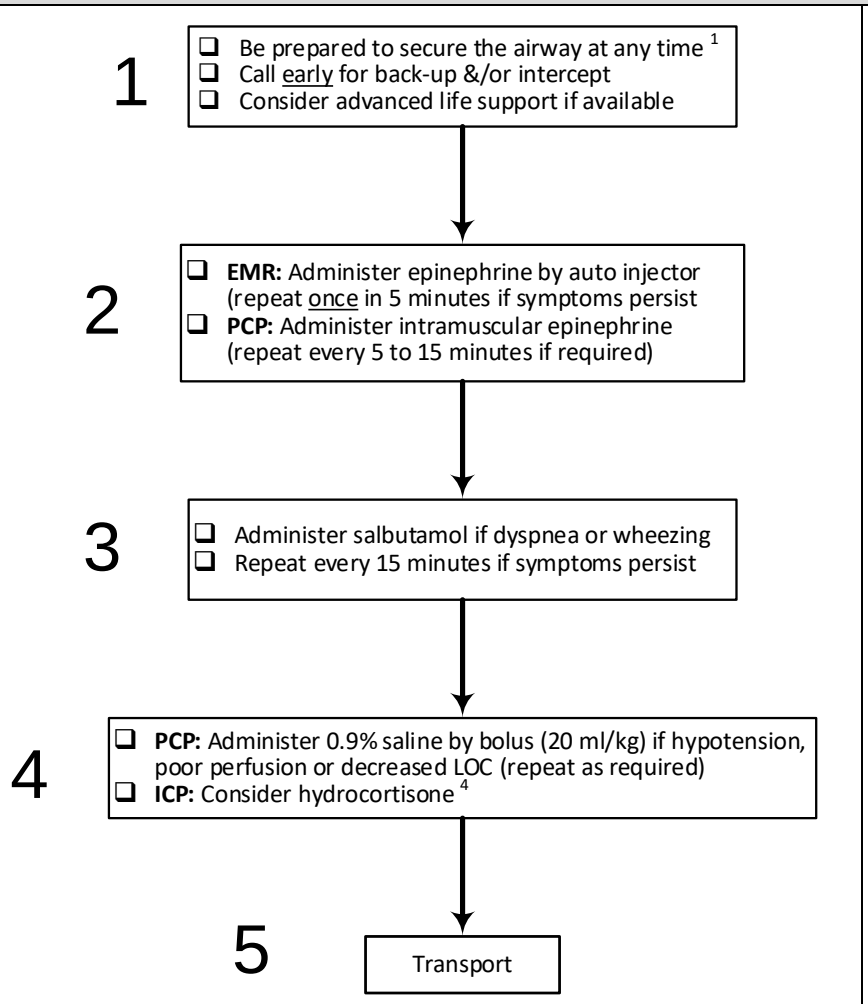
   When a paramedic co-signs, a PCR written out by a colleague they are taking the same responsibility as the paramedic who filled out the PCR for the accuracy and completeness of the contents.
3. For high-alert medications, the paramedic who prepared the medication and the paramedic who performed the double-check must both sign the PCR.
4. The transfer of care to facility personnel occurs with triage by a registered nurse and the assignment of a CTAS score.
5. Paramedics will cooperate with facility staff to ensure safe and appropriate off-loading.
6. Paramedics will provide an appropriate report to a receiving HCP and will ensure that EMS is not immediately required for further assistance or emergent IFT before departing the patient drop-off destination.

LINKS / REFERENCES
• CPMB PRACTICE DIRECTION - DELEGATION OF RESERVED ACTS • CPMB PRACTICE DIRECTION - PARAMEDIC SCOPE OF PRACTICE • CPMB PRACTICE DIRECTION - PROVIDING CARE WHILE OFF DUTY

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X01 for change tracking)
• Contains clearer language defining work scope, clearer language regarding standing medication orders and varying standing orders, and age groupings • Addition of definition for “open” ED • Stipulations that both paramedics must sign for high-alert medications

APPENDIX A: WORK SCOPE IDENTIFIERS



- *The steps in boxes 1 can be performed by paramedics at all levels.*
- *In box 2, an EMR will administer epinephrine by autoinjector. A PCP or ICP should administer it by IM injection but the autoinjector could be substituted if necessary. However, an EMR cannot administer by intramuscular injection.*
- *The steps in box 3 can be performed by paramedics at all levels.*
- *In box 4, a PCP or ICP can administer IV fluid, but only an ICP can consider to give hydrocortisone.*
- *The steps in box 3 can be performed by paramedics at all levels.*

ERS WORK SCOPE	**EMR:** EMR only	**PCP:** PCP - ICP	**ICP:** ICP only	None - All providers

Shared health Soins communs Manitoba	A02 - PRESCRIBED MEDICATIONS DURING IFT
	POLICY
Version date: 2024-04-04	Effective date: 2024-05-15 (0700)

INDICATIONS

- Administration of prescribed medications during an interfacility transfer (IFT)

CONTRAINDICATIONS

- All contraindications must be addressed by the prescribing physician prior to IFT

NOTES

1. During an IFT paramedics with the primary or intermediate work scope (A01) may be required to administer a scheduled or unscheduled (PRN) medication that has been prescribed at the referring facility, but is not covered by an ERS standing order.

   Paramedics with the basic work scope cannot administer a medication that is not within their ERS work scope, regardless of a physician order. They may, however, assist a patient in taking their prescribed scheduled or PRN medications

2. A signed order from the prescribing physician (A08) is required. A copy of the order must accompany the patient and be appended to the patient care record.

   The order must include the dose, route of administration, repeat dosing, and dosing interval. Times for scheduled medications must be specified. The parameters for administering an unscheduled (PRN) medicine must be included. The administration route must be within the paramedic's work scope and competency.

   The medications must be documented in the patient care record (PCR) in the required format.

3. Paramedics will not comply with an order that they know to be wrong, inaccurate, or illegible.

4. Paramedics may only accept a medication from the referring facility that is appropriately packaged and labelled. Controlled substances must be securely stored.

LINKS / REFERENCES

- A01 - EMERGENCY MEDICAL SERVICE OVERVIEW
- A08 - WHO CAN GIVE ORDERS (STANDING ORDERS & DELEGATIONS)

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X07 for change tracking)
• Renamed & renumbered (replaces G02) • Revised notes for clarification

Shared health Soins communs Manitoba	A03 - HIGH ALERT MEDICATIONS
	POLICY
Version date: 2024-03-20	Effective Date: 2024-05-15 (0700)

NOTES

1. High-alert medications require additional safeguards including independent double-checks, specific storage instructions, and label requirements to enhance patient safety and reduce errors that may lead to the possibility of serious harm. The Shared Health Provincial Clinical Standard for High-Alert Medications (HAM) has been developed to promote the safe prescribing, labelling, packaging, storage, preparation, administration, and monitoring of high-alert medications. This clinical standard and HAM list are applicable to all provincial clinical areas, including Emergency Response Services (ERS).
2. Appendix A includes the medications that are used by ERS during primary response and the exceptions under which they are exempt from some aspects of the clinical standard.

   For example, medications required during cardiac resuscitation do not require an independent double-check. However, paramedics should still ensure that all other safe medication administration principles are followed (H04).
3. Reference H03.1 contains the Shared Health clinical standard, while H03.2 contains the most recent listing of high-alert medications, some of which paramedics may encounter during interfacility transfer.
4. Except as noted above, an **independent double-check** is mandatory when preparing and administering a high-alert medication, including a double-check of all calculations performed. The double check must always include visual as well as verbal verification.

   The paramedic who will be administering the high-alert medication must be one of the two individuals who perform the independent double-check.
5. If a paramedic is working alone, they must perform a **self-check** when preparing and administering a high-alert medication.

   If possible, they should perform another unrelated task between the initial calculations, medication preparation, and self-checking. This is referred to as a **time-out**.
6. ERS requires a double-check when certain medications are given to pediatric patients, regardless of the route.
7. During medication preparation, the double-check must include:
   - The correct medication and concentration
   - The correct volume of medication needed
   - The correct type and volume of diluent (if applicable)
   - The correct volume and concentration of the finished preparation
8. Infusion labelling must include:
   - The drug name, dose, concentration, and volume
   - The diluent type and volume (if applicable)
   - The patient's name
   - The initials of both paramedics
9. During medication administration, the double-check must include:
   - The correct patient

- The correct medication and concentration
- The correct dose
- The correct route of administration
- The correct time (if applicable)

In addition, the double-check of all intermittent and continuous infusions must also include:

- The correct rate of administration
- The correct pump settings
- The correct administration set

10. Double-checks of infusions are required when:
    - Establishing the infusion
    - The rate or dose is changed
    - The infusion container is changed
11. The paramedic who prepared the medication and the paramedic who performed the double-check must both sign the patient care record (PCR).

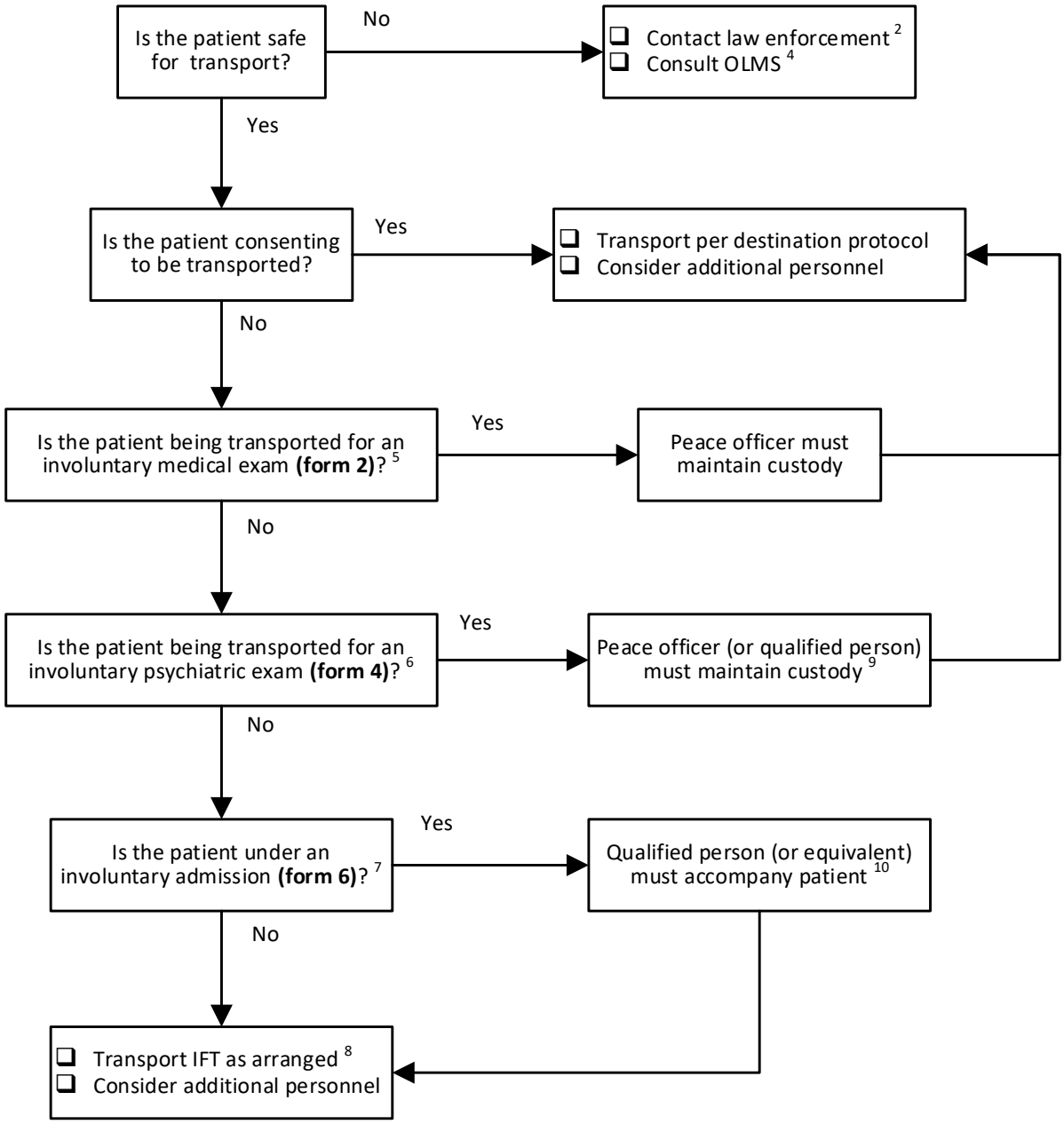
LINKS / REFERENCES
• H03.1 - SHARED HEALTH PROVINCIAL CLINICAL STANDARD FOR HIGH-ALERT MEDICATIONS https://healthproviders.sharedhealthmb.ca/files/ham-standard.pdf • H03.2 - PROVINCIAL HIGH-ALERT MEDICATIONS LIST https://healthproviders.sharedhealthmb.ca/files/ham-provincial-list.pdf • H04 - SAFE MEDICATION ADMINISTRATION

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X01 for change tracking)
• Appendix A revised to include medications used for emergency situations • Medications likely to be encountered on IFT listed in reference H03.2

APPENDIX A: HIGH ALERT MEDICATION IN PRIMARY RESPONSE	
AGENT	**EXCEPTION (DOES NOT REQUIRED DOUBLE-CHECK / SELF-CHECK)**
Amiodarone (M14)	• IV direct during resuscitation
Calcium chloride (M26)	• IV direct during resuscitation
Dextrose (M06.2)	• IV direct
Enoxaparin (M43)	• Subcut / IM from prefilled syringe
Epinephrine (M05.2)	• IV direct during resuscitation; IM / autoinjector (anaphylaxis, asthma)
Fentanyl (M03.2)	• IV direct / subcut / IM from vials containing 100 mcg or less (adults only) [6]
Ketamine (M17)	• IV direct (adults only) [6]
Magnesium sulfate (M24)	• IV direct
Midazolam (M07.1)	• IV direct (adults only) [6]
Morphine (M03.1)	• IV direct / subcut / IM from vials containing 15 mg or less (adults only) [6]
Nitroglycerin (M21)	• Sublingual or transdermal
Oxytocin (M16)	• Postpartum
Sodium bicarbonate (M18)	• IV / IO direct during resuscitation
For the purposes of this policy, *IV direct* is the administration of a medication, usually over less than 5 to 10 minutes, through an injection site adjacent to the needle, catheter or intraosseous device, or directly into a vein.	

Shared health Soins communs Manitoba	**A04 - TRANSPORTING UNDER THE MENTAL HEALTH ACT (MHA)**
	POLICY & PROCEDURE
Version date: 2023-10-20	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS:
• Patient with a known or suspected mental health condition [1] • Patient under the Mental Health Act on a form 2, 4, or 6

CONTRAINDICATIONS
• Not applicable

NOTES

1. For the purposes of this care map, symptoms or signs of a mental health condition include:
   - Suicide attempt, ideation, or expressions of intent
   - Homicidal ideation or expression of intent
   - Depressed or anxious mood
   - Hallucinations
2. Paramedics must not endanger themselves at any time**.** Contact law enforcement if there are any indications from the patient's speech or behaviour (or from collateral history) that transporting would create a risk to the patient, provider, or public.
3. The Mental Health Act (MHA) is the legislation for the involuntary detention (custody), transport, assessment, and admission of a person who lacks the mental capacity to provide informed consent by reason of a mental disorder.
4. Except for urgent situations paramedics must consult on-line medical support (OLMS) before administering sedation to a patient under the MHA.
5. An *Order for Involuntary Medical Examination* (form 2) signed by a magistrate gives a peace officer the legal authority to detain and transport (or request transport by EMS) of an individual without their consent. If a peace officer reasonably believes that an individual is suffering from a mental disorder and the situation is urgent, the MHA grants the same authority without an order.
6. An *Application by Physician for Involuntary Psychiatric Examination* (form 4) signed by a physician gives a peace officer the legal authority to detain and transport (or request transport) of an individual without their consent.
7. An *Involuntary Admission Certificate* (form 6) signed by a psychiatrist gives the medical director of a psychiatric service or facility the legal authority to admit a patient to a mental health facility without their consent.
8. Note that a patient who is in custody or being admitted without consenting does not give up their right to consent to or refuse medical treatment.

   Paramedics can transport the patient without consent, but must follow ERS – Provincial EMS/PT consent policies and practices (including the principle of implied consent in an emergency) for all medical interventions during the interfacility transfer (IFT) of a patient under the MHA.
9. A peace officer may transfer custody to a *qualified person* (as defined by the MHA) while they are awaiting assessment or admission.

10. Certain health care providers such as nurses and aides may be considered *equivalent* to a qualified person by virtue of their role within the health care facility.

    Currently paramedics are not considered qualified persons or equivalent under the MHA**.**

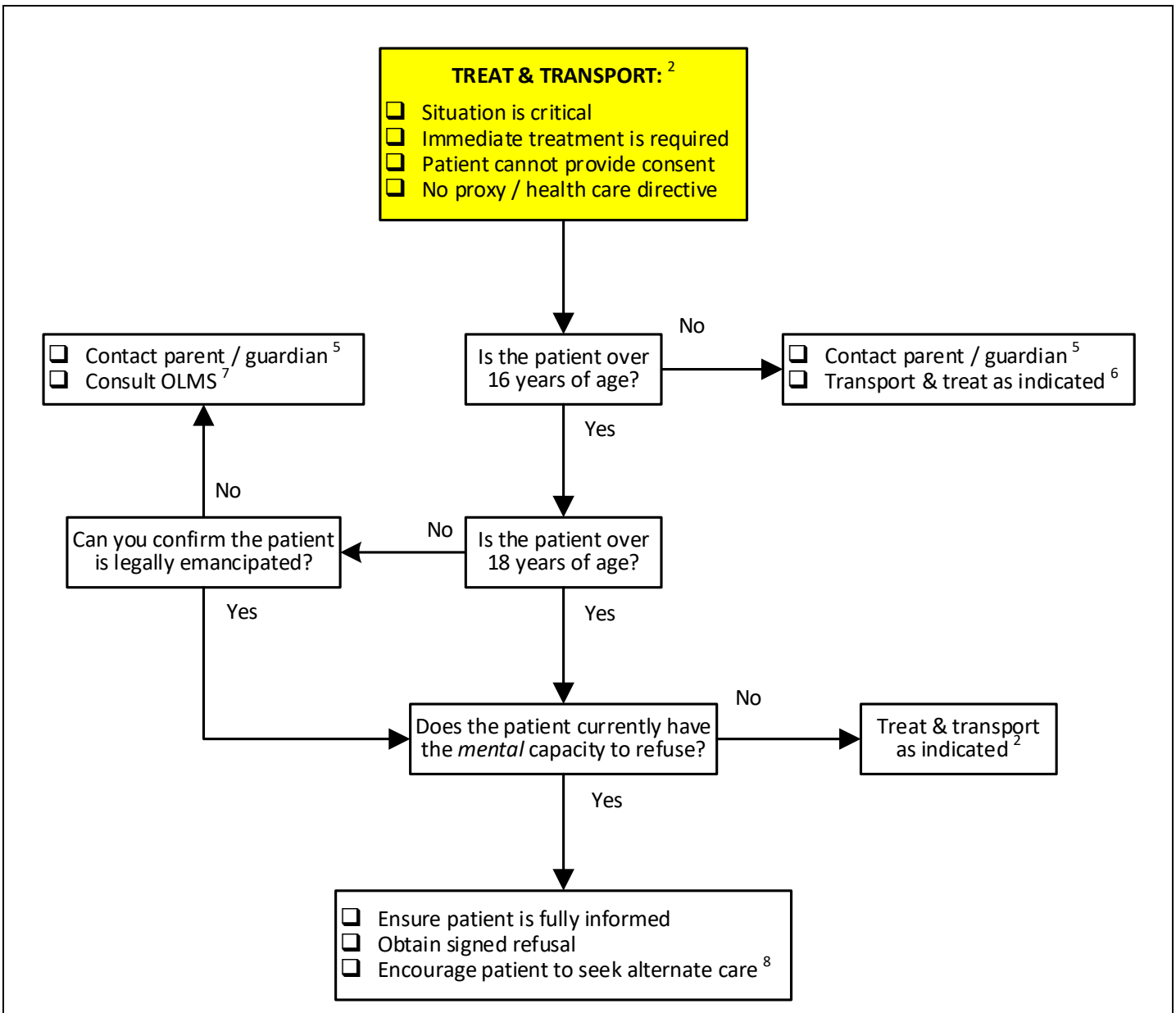
11. A paramedic may consult on-line medical support (OLMS) at any time.

LINKS & REFERENCES
• A05 - TREATMENT & TRANSPORT REFUSAL • H05 - PRINCIPLES OF CONSENT

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X01 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	**A05 - TREATMENT & TRANSPORT REFUSAL**
	POLICY & PROCEDURE
Version date: 2024-01-18	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

NOTES

1. Patients have the right to make their own decisions about their health care, including the right to refuse treatment and ambulance transport. Consent to treatment and transport cannot be assumed simply by calling 911.
2. Treat and transport under the principle of *implied consent* if:
   a. The patient's condition and time-sensitive
   b. Immediate treatment is required to save life, limb, or vital function.
   c. The patient cannot provide consent
   d. There is no substitute decision maker (proxy) readily available.
   e. There is not health care directive indicating the patient's goals of care.
3. Refusals are a potentially high-risk situation. Paramedics may consult on-line medical support (OLMS) at any time. Complete and appropriate documentation of the consent / refusal discussion is essential.

   A refusal that is obtained by influence, deception, omission, concealment, or coercion is generally not upheld, regardless that the patient has signed a release.
4. Paramedics will transport all patients from primary response calls, except when:
   a. The patient or their proxy withholds consent (makes a valid refusal).
   b. There is an Shared Health EMS treat and release protocol that allows for treatment without transporting.
   c. A qualified health care provider maintains responsibility for the patient's care. [10]
5. Paramedics should make reasonable efforts to contact the parent or guardian of any patient under the age of 18 years, except where:
   a. The situation is critical, and time is of the essence.
   b. There is reasonable concern for the safety of the patient, such as with suspected abuse or neglect by the parent or guardian.
   c. It can be confirmed that the patient is legally emancipated.
6. <u>If a parent or guardian cannot be reached, patients under 16 years of age must be treated as clinically indicated and transported to a health care facility</u>. Persons under 16 years of age (unless legally emancipated) do not have the legal capacity to make their own health care decisions.
7. <u>If a parent or guardian cannot be reached, paramedics must consult OLMS for patients between the ages of 16 and 18 years</u>. The physician can assist with determining the best course of action if a minor patient is refusing treatment or transport.
8. Do not leaving medications or devices with a patient.
9. If requested by law enforcement or any other agency to provide *medical clearance*, paramedics must advise that the patient should be transported to a health care facility for a medical assessment. While law enforcement has the authority to take an individual into custody and maintain custody of an individual, they cannot provide consent or refusal on behalf of a patient.
10. In the event of a request from a health care facility such as a personal care for a *lift-assist*, paramedics must independently assess the patient and determine if there is any need for transport to a hospital. If transport is not indicated, a qualified health care provider at the facility must assume ongoing responsibility for the patient.

    In the event of a request from a member of the public for assistance in a private home, the patient or their proxy must be advised to be that they should be transported to a health care facility for a medical assessment.

LINKS & REFERENCES
• H05 - PRINCIPLES OF CONSENT

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X01 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	A06.1 - EMS WORK SCOPE (MEDICAL FUNCTIONS & PROCEDURES)
	POLICY
Version date: 2024-04-03	Effective date: 2024-05-15 (0700)

NOTES:

1. The ERS work scope includes the set of medical functions and procedures that a paramedic may perform (table A). It is based on the individual's employment classification and apply regardless of the CPMB registration level or scope of work under another employer (A01). Appendix A groups the functions by employment classification.
2. Under exigent circumstances a paramedic with the primary or intermediate work scope may receive a **delegation** from an ERS medical director, ERS-affiliated physician, or ERS advanced care paramedic (ACP) to perform a medical function that is not within their routine work scope.

   The delegation is given on a one-time basis, is specific to the patient's current situation, must be within the paramedic's scope of practice and competency, and must be documented in the patient care record (PCR) in the required format.

   A paramedic with the basic work scope cannot accept a delegation for any additional medical functions, regardless of a physician order.
3. Where indicated ERS *requires* additional training and maintenance / verification of continuing competency to perform these procedures.
4. ERS *may require* additional training and maintenance / verification of continuing competency to perform other procedures, including (but not limited to) those that are outside of typical paramedic scope or high-risk / low volume.

ASSESSMENT / GENERAL MANAGEMENT	EMR	PCP	ICP
Making & communicating a diagnosis	No	Yes	Yes
Receiving a report of a test - electrocardiogram from STEMI physician	No	Yes	Yes
Receiving a report of a test - diagnostic imaging to confirm device position before use	No	Yes	Yes
Recover patient who has received procedural sedation	No	Yes [3]	Yes
AIRWAY & BREATHING	EMR	PCP	ICP
Blind-insertion airway device (BIAD) insertion (i-Gel)	No	Yes	Yes
Gastric tube insertion through i-Gel airway	No	Yes	Yes
Oxygen administration	Yes	Yes	Yes

Oxygen titration	Yes [3]	Yes	Yes
Pharyngeal airway insertion (oral / nasal)	Yes	Yes	Yes
Removal of pharyngeal foreign body	Yes [3]	Yes	Yes
Continuous positive airway pressure (CPAP) ventilation	No	Yes	Yes
Basic tracheostomy management	Yes [3]	Yes [3]	Yes
CIRCULATION	EMR	PCP	ICP
Cardioversion	No	No	Yes
Defibrillation without rhythm interpretation (AED)	Yes	Yes	Yes
Defibrillation with rhythm interpretation	No	Yes [3]	Yes
Electrocardiogram acquisition	No	Yes	Yes
Electrocardiogram interpretation	No	No	Yes
Transcutaneous pacing	No	No	Yes
OBSTETRICS	EMR	PCP	ICP
Out of hospital delivery	Yes [3]	Yes	Yes
Newborn resuscitation	Yes [3]	Yes [3]	Yes [3]
McRobert's maneuver for shoulder dystocia	Yes [3]	Yes	Yes
Performing "V" maneuver for breech presentation	Yes [3]	Yes	Yes
Stabilizing fetal presenting part off pelvic brim for cord prolapse	Yes [3]	Yes	Yes
External uterine massage for post-partum hemorrhage	Yes [3]	Yes	Yes
TRAUMA & SURGICAL	EMR	PCP	ICP
Eye irrigation	Yes [3]	Yes	Yes
Foreign body removal	No	Yes	Yes
Management of an impaled object	Yes	Yes	Yes
Closed reduction for extrication / immobilization or to restore perfusion	Yes	Yes	Yes
Urinary catheter irrigation / removal	No	Yes [3]	Yes

Wound irrigation	Yes	Yes	Yes
Basic wound management	Yes	Yes	Yes
VASCULAR ACCESS	EMR	PCP	ICP
Intravenous cannulation	No	Yes	Yes
Intraosseous device insertion	No	No	Yes
Subcutaneous line insertion	No	Yes [3]	Yes
MEDICATION ADMINSTRATION BY ROUTE OR PROCEDURE	EMR	PCP	ICP
Autoinjector	Yes [3]	Yes	Yes
Buccal, oral, or sublingual	Yes [3]	Yes	Yes
Inhalation with metered-dose inhaler	Yes [3]	Yes	Yes
Inhalation with nebulizer	No	Yes	Yes
Intranasal administration	Yes [3]	Yes	Yes
Intramuscular injection	No	Yes	Yes
Injection into peripheral intravenous device / line	No	Yes	Yes
Injection into peripherally-inserted central catheter (PICC) device / line	No	Yes [3]	Yes
Injection into intraosseous device / line	No	No	Yes
Injection into intraosseous device / line when established by another health care provider	No	Yes [3]	Yes
Injection into central intravenous line (emergency only)	No	Yes [3]	Yes [3]
Injection into subcutaneous port-a-cath (emergency only)	No	Yes [3]	Yes [3]
Subcutaneous injection	No	Yes	Yes
TRANSPORT WITH DEVICE ESTABLISHED BY ANOTHER HEALTH CARE PROVIDER	EMR	PCP	ICP
Peripheral intravenous device / line	Yes [3]	Yes	Yes
Peripherally-inserted central catheter (PICC) device / line	Yes [3]	Yes	Yes
Continuous peritoneal dialysis	Yes	Yes	Yes
Gastric suction / feeding tube (oral / nasal)	Yes [3]	Yes	Yes

Percutaneous gastrojejunostomy tube	Yes [3]	Yes	Yes
Jackson-Pratt wound drain	Yes [3]	Yes	Yes
Temperature probe (esophageal / rectal)	Yes [3]	Yes	Yes
Thoracostomy (chest) tube with any suction / drainage system	No	Yes [3]	Yes
Transcutaneous pacemaker	No	No	Yes
Urinary catheter (transurethral or suprapubic)	Yes	Yes	Yes
Urinary bladder irrigation (Kelley)	No	Yes [3]	Yes
Central venous catheter	No	Yes [3]	Yes
Patient-controlled anesthesia (PCA) pump	No	Yes [3]	Yes [3]
TR Band ™ radial artery compression device	No	Yes [3]	Yes [3]
MEDICATION ADMINISTRATION DURING PATIENT TRANSPORT	EMR	PCP	ICP
Prescribed scheduled & prn medications (A02)	No	Yes	Yes
Established medication infusions (A06.3)	Yes [3]	Yes [3]	Yes

LINKS / REFERENCES
• A02 - PRESCRIBED MEDICATIONS DURING IFT • A06.3 - EMS WORK SCOPE (ESTABLISHED MEDICATION INFUSIONS)

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X01 for change tracking)
• Renumbered from A06 • Medications moved to separate policy (A06.2) • Addition of uterine massage and CPAP • Addition of “emergency only” caveat to injection into subcutaneous port or central venous line • Incorporation of variances from ATT Work scope (G03) including receiving diagnostic imaging report, procedural sedation recovery, transporting with PCA pump and TR band • Basic tracheostomy management replaces PPV / suctioning / obstruction relief • Appendix A outlines work scope by employment classification

APPENDIX A - WORK SCOPE BY EMPLOYMENT CLASSIFICATION

BASIC WORK SCOPE
AIRWAY & BREATHING: • Oxygen administration • Oxygen titration [3] • Pharyngeal airway insertion - oral / nasal • Removal of pharyngeal foreign body [3] • Tracheostomy management [3]
CIRCULATION: • Defibrillation without rhythm interpretation (AED)
MATERNAL & NEWBORN: • Out-of-hospital delivery [3] • Newborn resuscitation [3] • McRobert's maneuver for shoulder dystocia [3] • Performing "V" maneuver for breech presentation [3] • Stabilizing fetal presenting part off pelvic brim for cord prolapse [3] • External uterine massage for post-partum hemorrhage [3]
TRAUMA & SURGICAL: • Eye irrigation [3] • Management of an impaled object • Closed reduction for extrication / immobilization or to restore perfusion • Wound irrigation • Basic wound management
MEDICATION ADMINSTRATION BY ROUTE OR PROCEDURE: • Autoinjector [3] • Buccal, oral, or sublingual route [3] • Inhalation with MDI [3] • Intranasal administration [3]
TRANSPORT WITH DEVICE ESTABLISHED BY ANOTHER HEALTH CARE PROVIDER: • Peripheral intravenous device / line [3] • Peripherally-inserted central catheter (PICC) device / line [3] • Continuous peritoneal dialysis • Gastric suction / feeding tube (oral / nasal) [3] • Percutaneous gastrojejunostomy tube [3] • Jackson-Pratt wound drain [3] • Temperature probe (esophageal /rectal) [3] • Urinary catheter (transurethral or suprapubic) [3]
MEDICATION ADMINISTRATION DURING INTERFACILITY TRANSPORT: • Established medication infusions (as outlined in A06.3)

PRIMARY WORK SCOPE
ASSESSMENT / GENERAL MANAGEMENT: • Making & communicating a diagnosis • Receiving a report of a test - electrocardiogram from STEMI physician • Receiving a report of a test - diagnostic imaging to confirm device position before use • Recover patient who has received procedural sedation [3]
AIRWAY & BREATHING: • Blind-insertion airway device (BIAD) insertion (i-Gel) • Gastric tube insertion through i-Gel airway • Oxygen administration • Oxygen titration • Pharyngeal airway insertion (oral / nasal) • Continuous positive airway pressure (CPAP) ventilation • Removal of pharyngeal foreign body • Basic tracheostomy management [3]
CIRCULATION: • Defibrillation without rhythm interpretation (AED) • Defibrillation with rhythm interpretation [3] • ECG acquisition
MATERNAL & NEWBORN: • Out of hospital delivery • Newborn resuscitation [3] • McRobert's maneuver for shoulder dystocia • Performing "V" maneuver for breech presentation • Stabilizing fetal presenting part off pelvic brim for cord prolapse • External uterine massage for post-partum hemorrhage
TRAUMA & SURGICAL: • Eye irrigation • Foreign body removal • Management of an impaled object • Closed reduction for extrication / immobilization or to restore perfusion • Urinary catheter irrigation / removal [3] • Wound irrigation • Basic wound management
VASCULAR ACCESS: • Intravenous cannulation • Subcutaneous line insertion [3]
MEDICATION ADMINISTRATION BY ROUTE OR PROCEDURE: • Autoinjector • Buccal, oral, or sublingual route • Inhalation with metered-dose inhaler • Inhalation with nebulizer • Intranasal administration

- Intramuscular injection
- Injection into a peripheral intravenous device / line
- Injection into peripherally-inserted central cather (PICCI) device / line
- Injection into intraosseous device / line when established by another health care provider [3]
- Injection into central intravenous line (emergency only) [3]
- Injection into subcutaneous port-a-cath (emergency only) [3]
- Subcutaneous injection

TRANSPORT WITH DEVICE ESTABLISHED BY ANOTHER HEALTH CARE PROVIDER:

- Peripheral intravenous device / line
- Peripherally-inserted central cather (PICCI) device / line
- Continuous peritoneal dialysis
- Gastric suction / feeding tube (oral / nasal)
- Percutaneous gastrojejunostomy tube
- Jackson-Pratt (wound) drain
- Temperature probe (esophageal /rectal)
- Thoracostomy (chest) tube with any suction / drainage system [3]
- Urinary catheter (transurethral or suprapubic)
- Urinary bladder irrigation (Kelley) [3]
- Central venous catheter [3]
- Patient-controlled anesthesia (PCA) pump [3]
- TR Band [TM] radial artery compression device [3]

MEDICATION ADMINISTRATION DURING INTERFACILITY TRANSPORT:

- Prescribed scheduled & prn medications (A02)
- Established medication infusions (A06.3) [3]

INTERMEDIATE WORK SCOPE

ASSESSMENT / GENERAL MANAGEMENT:

- Making & communicating a diagnosis
- Receiving a report of a test - electrocardiogram from STEMI physician
- Receiving a report of a test - diagnostic imaging to confirm device position before use
- Recover patient who has received procedural sedation

AIRWAY & BREATHING:

- Blind-insertion airway device (BIAD) insertion (i-Gel)
- Gastric tube insertion through i-Gel airway
- Oxygen administration
- Oxygen titration
- Pharyngeal airway insertion (oral / nasal)
- Continuous positive airway pressure (CPAP) ventilation
- Removal of pharyngeal foreign body
- Basic tracheostomy management [3]

CIRCULATION:

- Cardioversion
- Defibrillation without rhythm interpretation (AED)

- Defibrillation with rhythm interpretation
- Electrocardiogram acquisition
- Electrocardiogram interpretation
- Transcutaneous pacing

MATERNAL & NEWBORN:

- Out of hospital delivery
- Newborn resuscitation [3]
- McRobert's maneuver for shoulder dystocia
- Performing "V" maneuver for breech presentation
- Stabilizing fetal presenting part off pelvic brim for cord prolapse
- External uterine massage for post-partum hemorrhage

TRAUMA & SURGICAL:

- Eye irrigation
- Foreign body removal
- Management of an impaled object
- Closed reduction for extrication / immobilization or to restore perfusion
- Urinary catheter irrigation / removal [3]
- Wound irrigation
- Basic wound management

VASCULAR ACCESS:

- Intravenous cannulation
- Intraosseous device insertion
- Subcutaneous line insertion

MEDICATION ADMINISTRATION BY ROUTE OR PROCEDURE:

- Autoinjector
- Buccal, oral, or sublingual route
- Inhalation with metered-dose inhaler
- Inhalation with nebulizer
- Intranasal administration
- Intramuscular injection
- Injection into a peripheral intravenous device / line
- Injection into peripherally-inserted central cather (PICCI) device / line
- Injection into intraosseous device / line
- Injection into central intravenous line (emergency only) [3]
- Injection into subcutaneous port-a-cath (emergency only) [3]
- Subcutaneous injection

TRANSPORT WITH DEVICE ESTABLISHED BY ANOTHER HEALTH CARE PROVIDER:

- Peripheral intravenous device / line
- Peripherally-inserted central cather (PICCI) device / line
- Continuous peritoneal dialysis
- Gastric suction / feeding tube (oral / nasal)
- Percutaneous gastrojejunostomy tube
- Jackson-Pratt (wound) drain
- Temperature probe (esophageal /rectal)
- Thoracostomy (chest) tube with any suction / drainage system [3]

- Transcutaneous pacemaker
- Urinary catheter (transurethral or suprapubic)
- Urinary bladder irrigation (Kelley) [3]
- Central venous catheter
- Patient-controlled anesthesia (PCA) pump [3]
- TR Band TM radial artery compression device [3]

MEDICATION ADMINISTRATION DURING INTERFACILITY TRANSPORT:

- Prescribed scheduled & prn medications (A02)
- Established medication infusions (A06.3) [3]

Shared health Soins communs Manitoba	**A06.2 - EMS WORK SCOPE (MEDICATIONS)**
	POLICY
Version date: 2024-04-04	Effective date: 2024-05-15 (0700)

NOTES

1. The ERS work scope includes the group of medications that a paramedic may administer (tables A and B). It is based on the paramedic's employment classification, and apply regardless of the individual's CPMB registration level or work scope under another employer (A01). Appendix A groups the medications by employment classification.
2. A physician order is required for all medications administered by paramedics. The ERS medication documents (section M) are a series of **standing orders** from ERS medical leadership that authorize a paramedic to administer a medication under a specific set of conditions which include the indications, contraindications, route, dosing, and frequency of repeat dosing.
3. Under exigent circumstances, and depending upon their employment classification, a paramedic may receive an **order** from an ERS medical director or ERS-affiliated physician (A08) to deviate from a standing order, or exceed their routine work scope. This order is given on a one-time basis, is specific to the patient's current situation, and must be documented in the patient care record (PCR) in the required format.
    a. A paramedic with the intermediate work scope may accept an order to vary from the indications, route, dosing, or frequency of repeat dosing specified in a standing order. As well, they may accept an order to administer a medication that is not within their routine work scope. The order must be within the paramedic's scope of practice and competency.
    b. A paramedic with the primary work scope may accept a physician order to vary the dosing or frequency of repeat dosing (but not the indications or route) specified in a standing order, but cannot accept an order to administer any medication that is not within their routine work scope. Again, the order must be within the paramedic's practice scope and competency.
    c. A paramedic with the basic work scope may not accept an order to vary any of the conditions specified in a standing order, nor to administer any medication beyond their routine work scope.
4. Paramedics with the primary work scope may administer specified additional medications only when transporting patients for the ERS Adult Transport Team (ATT). A written order from the prescribing health care provider is required.
5. Paramedics with the primary works scope may inject specified intravenous (IV) medications into an intraosseous (IO) device / line established by another health care provider/
6. ERS *requires* additional training and maintenance / verification of continuing competency to administer these specified medications. ERS *may require* additional training and maintenance / verification of continuing competency to administer other medications.

TABLE A - LISTED BY CATEGORY & SUBCATEGORY

CENTRAL NERVOUS SYSTEM	EMR	PCP	ICP
Anesthetic, local	None	None	Lidocaine *(IO only)*
Analgesic, opioid	None	Fentanyl Morphine [4] Hydromorphone [4]	Fentanyl Morphine
Analgesic, non-narcotic	Acetaminophen [6] Ibuprofen [6]	Acetaminophen Ibuprofen Ketamine *(IN only)* Ketorolac	Acetaminophen Ibuprofen Ketamine Ketorolac
Antagonist, opioid	Naloxone *(IN only)* [6]	Naloxone	Naloxone
Anticonvulsant	None	Midazolam	Midazolam
Antipsychotic / neuroleptic	None	Olanzapine	Haloperidol Olanzapine
Sedative / hypnotic, benzodiazepine	None	Lorazepam Midazolam *(excluding procedural sedation)*	Lorazepam Midazolam
AUTONOMIC NERVOUS SYSTEM	**EMR**	**PCP**	**ICP**
Adrenergic	Epi-Pen [6]	Epinephrine *(excluding cardiac arrest)*	Epinephrine
Anticholinergic	None	None	Atropine
Antihistamines	N/A	Diphenhydramine [4]	N/A
RESPIRATORY SYSTEM	**EMR**	**PCP**	**ICP**
Bronchodilator	Salbutamol *(MDI only)* [6]	Salbutamol	Salbutamol
CARDIOVASCULAR SYSTEM	**EMR**	**PCP**	**ICP**
Antiarrhythmic	None	None	Adenosine Amiodarone
Diuretic	None	None	Furosemide
Nitrate	None	Nitroglycerin	Nitroglycerin
HEMATOLOGICAL SYSTEM	**EMR**	**PCP**	**ICP**
Anticoagulant	None	Enoxaparin	Enoxaparin

Antifibrinolytic	None	Tranexamic acid	Tranexamic acid
Antiplatelet	Acetylsalicylic acid [6]	Acetylsalicylic acid Ticagrelor	Acetylsalicylic acid Ticagrelor
GASTROINTESTINAL SYSTEM	**EMR**	**PCP**	**ICP**
Antinauseant	None	Dimenhydrinate Metoclopramide	Dimenhydrinate Metoclopramide Ondansetron
LABOR / DELIVERY / POSTPARTUM	**EMR**	**PCP**	**ICP**
Uterotonic	None	Oxytocin	Oxytocin
ELECTROLYTE / SUBSTRATE IMBALANCE	**EMR**	**PCP**	**ICP**
Antihypoglycemic	Glucose [6] Glucagon *(IN only)* [6]	Glucose Dextrose Glucagon	Glucose Dextrose Glucagon
Crystalloid solution	None	No added electrolytes	Added electrolytes
Electrolyte & vitamin	None	Calcium *(PIH only)* Magnesium *(PIH only)*	Calcium Magnesium Sodium bicarbonate
INFECTION / INFLAMMATION	**EMR**	**PCP**	**ICP**
Corticosteroids	None	Hydrocortisone	Hydrocortisone

TABLE B - LISTED ALPHABETICALLY (M-DOCUMENT)

NAME	INDICATION	ROUTE	EMR	PCP	ICP
Acetaminophen (M02.1)	pain, fever	PO	Yes [6]	Yes	Yes
Acetylsalicylic acid (M37.1)	ACS, STEMI, chest pain	PO	Yes [6]	Yes	Yes
Adenosine (M01)	PSVT, NCT	IV (IO)	No	No	Yes
Amiodarone (M14)	cardiac arrest, ROSC, WCT	IV (IO)	No	No	Yes
Atropine (M39)	unstable bradycardia	IV (IO)	No	No	Yes
Calcium chloride (M26)	hyperkalemia /	IV (IO)	No	No	Yes
	magnesium toxicity (PIH)	IV (IO)	No	Yes [5]	Yes
Crystalloid solution (n/a)	no added electrolytes	IV (IO)	No	Yes [5]	Yes
	added electrolytes	IV (IO)	No	No	Yes
Dextrose (M06.2)	hypoglycemia	IV (IO)	No	Yes [5]	Yes
Dimenhydrinate (M04.1)	nausea, vomiting	IV (IO) / IM	No	Yes [5]	Yes
Diphenhydramine (n/a)	allergic reaction	IV / IM / PO	No	Yes [4]	Yes
Enoxaparin (M43)	STEMI	IV / SC	No	Yes	Yes
Epinephrine (M05)	cardiac arrest	IV (IO)	No	No	Yes
	anaphylaxis	autoinjector	Yes [6]	Yes	Yes
		IM	No	Yes	Yes
	asthma	IM	No	Yes	Yes
	croup	nebulizer	No	Yes	Yes
Fentanyl (M03.2)	pain	IV (IO) / IM / IN	No	Yes [5]	Yes
Furosemide (M09)	pulmonary edema	IV (IO)	No	No	Yes
Glucagon (M06.3, M06.4)	hypoglycemia	IN	Yes [6]	Yes	Yes
		IV (IO) / IM	No	Yes [5]	Yes
Glucose (M06.1)	hypoglycemia	PO	Yes [6]	Yes	Yes
Haloperidol (M34)	agitation	IV (IO) / IM	No	No	Yes

Hydrocortisone (M13)	asthma, anaphylaxis, adrenal insufficiency	IV (IO) / IM / SC	No	Yes [5]	Yes
Hydromorphone (n/a)	pain	IV / IM / PO	No	Yes [4]	Yes
Ibuprofen (M02.2)	pain, fever	PO	Yes [6]	Yes	Yes
Ketamine (M17)	pain	IN	No	Yes	Yes
		IV (IO) / IM	No	No	Yes
Ketorolac (M38)	pain	IV (IO) / IM	No	Yes [5]	Yes
Lidocaine (M25)	anesthesia	IO dwell	No	No	Yes
Lorazepam (M07.5)	anxiety	PO	No	Yes	Yes
Magnesium sulfate (M24)	cardiac arrest	IV (IO)	No	No	Yes
	preeclampsia / eclampsia	IV (IO)	No	Yes [5]	Yes
Metoclopramide (M04.2)	nausea, vomiting	IV (IO)	No	Yes [5]	Yes
Midazolam (M07.1)	seizure	IN	No	Yes	Yes
	seizure, chemical restraint, withdrawal, stimulant toxicity	IV (IO) / IM	No	Yes [5]	Yes
	procedural sedation	IV (IO)	No	No	Yes
Morphine (M03.1)	pain	IV (IO) / IM	No	Yes [4]	Yes
Naloxone (M11)	opiate / opioid overdose	IN	Yes [6]	Yes	Yes
		IV (IO) / IM	No	Yes [5]	Yes
Nitroglycerin (M21)	ACS, STEMI, chest pain	SL, transdermal	No	Yes	Yes
Olanzapine (M22)	Methamphetamine psychosis	PO	No	Yes	Yes
Ondansetron (M04.3)	nausea, vomiting	IV (IO)	No	No	Yes
Oxytocin (M16)	postpartum routine, postpartum hemorrhage	IV (IO)	No	Yes	Yes
Salbutamol (M15)	asthma, bronchospasm	MDI	Yes [6]	Yes	Yes
		nebulizer	No	Yes	Yes
Sodium bicarbonate (M18)	hyperkalemia	IV (IO)	No	No	Yes

Ticagrelor (M37.2)	ACS	PO	No	Yes	Yes
Tranexamic acid (M28)	traumatic hemorrhage, postpartum hemorrhage	IV (IO)	No	Yes [5]	Yes

LINKS / REFERENCES

- A01 - EMERGENCY MEDICAL SERVICE OVERVIEW
- A08 - WHO CAN GIVE ORDERS (STANDING ORDERS & DELEGATIONS)

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X012 for change tracking)

- New (medications removed from A06)
- Inclusion of hydromorphone, morphine, and diphenhydramine for ATT
- Appendix groups work scopes by employment classification

APPENDIX A - WORK SCOPE BY EMPLOYMENT CLASSIFICATION

BASIC WORK SCOPE [6]	
• Acetaminophen • Acetylsalicylic acid • Epinephrine *(autoinjector only)* • Glucagon *(intranasal only)*	• Glucose • Ibuprofen • Naloxone *(intranasal only)* • Salbutamol *(MDI only)*

PRIMARY WORK SCOPE	
• Acetaminophen • Acetylsalicylic acid • Calcium chloride (PIH only) • Dextrose • Dimenhydrinate • Diphenhydramine [4] • Enoxaparin • Epinephrine • Fentanyl • Glucagon • Glucose • Hydrocortisone • Hydromorphone [4] • Ibuprofen • Intravenous fluid (no added electrolytes)	• Ketamine • Ketorolac • Lorazepam • Magnesium sulfate (PIH only) • Metoclopramide • Midazolam • Morphine [4] • Naloxone • Nitroglycerin • Olanzapine • Oxytocin • Salbutamol • Ticagrelor • Tranexamic acid

APPENDIX C - INTERMEDIATE WORK SCOPE	
• Acetaminophen • Acetylsalicylic acid • Adenosine • Amiodarone • Atropine • Calcium chloride • Dextrose • Dimenhydrinate • Enoxaparin • Epinephrine [9] • Fentanyl • Glucagon • Glucose	• Ketamine • Ketorolac • Lorazepam • Magnesium sulfate • Metoclopramide • Midazolam • Morphine • Naloxone • Nitroglycerin • Olanzapine • Ondansetron • Oxytocin • Salbutamol

- Haloperidol
- Hydrocortisone
- Ibuprofen
- Intravenous fluid
- Sodium bicarbonate
- Ticagrelor
- Tranexamic acid

Shared health Soins communs Manitoba	A06.3 - EMS WORK SCOPE (ESTABLISHED INFUSIONS)
	POLICY
Version date: 2024-04-14	Effective date: 2023-05-15 (0700)

NOTES

1. The ERS work scope includes the continuation and management of certain medication infusions established by another health care provider. It is based on the individual's employment classification and apply regardless of the individual's CPMB registration level or scope of work under another employer (A01).
2. A paramedic may continue and manage any of the infusions listed in table A (even if it is not within their routine ERS work scope) when it has been established by another health care provider prior to transport; it cannot be interrupted for transport; and the transport is emergent, urgent or otherwise time-sensitive.

   Appendix A groups the established infusions by employment classification.
3. A signed order from the prescriber is required (A08). A copy of the order must accompany the patient and be appended to the patient care record. Appropriate details must be documented in the patient care record (PCR) in the required format.
4. Paramedics with the basic and primary work scopes cannot titrate medication infusions. Medications that may require titration during transport must include titration parameters in the order.
5. Except for discontinuing an infusion where fluid overload is known or suspected, paramedics with the basic work scope cannot adjust intravenous crystalloid solution infusion rates.
6. The patient must have already received the first dose of antibiotic in hospital without adverse reaction.
7. ERS *requires* additional training and maintenance / verification of continuing competency to manage these specified infusions. ERS *may require* additional training and maintenance / verification of continuing competency to manage other infusions.

TABLE A		EMR	PCP	ICP
Amiodarone		No	No	Yes
Antibiotics		Yes [6, 7]	Yes [6]	Yes
Crystalloid solution	No added electrolytes	Yes [5, 7]	Yes	Yes
	Added electrolytes	No	Yes	Yes
Dextrose	10% or less	Yes [5, 7]	Yes	Yes
	More than 10%	No	Yes	Yes
Diltiazem		No	Yes	Yes
Fosphenytoin		No	Yes	Yes
Glucagon		No	Yes	Yes

Heparin		Yes [7]	Yes	Yes
Insulin	No titration	No	Yes	Yes
	With titration [4]	No	No	Yes
Ketamine		No	No	Yes
Labetolol		No	No	Yes
Lidocaine		No	No	Yes
N-acetylcysteine		Yes [7]	Yes	Yes
Naloxone		Yes [7]	Yes	Yes
Nitroglycerin		No	No	Yes
Octreotide		Yes [7]	Yes	Yes
Oxytocin		Yes [7]	Yes	Yes
Pantoprazole		Yes [7]	Yes	Yes
Phenytoin		No	Yes	Yes
Remdesevir		No	Yes	Yes
Tolicizumab		No	Yes	Yes
Total parenteral nutrition (TPN)		No	Yes [7]	Yes

LINKS
• A01 - EMERGENCY MEDICAL SERVICE OVERVIEW • A08 - WHO CAN GIVE ORDERS (STANDING ORDERS & DELEGATIONS)

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X07 for change tracking)
• Renamed & renumbered from G01 • Esmolol, midazolam, propofol & opioid analgesics removed

APPENDIX A - WORK SCOPE BY EMPLOYMENT CLASSIFICATION

BASIC WORK SCOPE [7]
• Antibiotics [6] • Crystalloid solution (no added electrolytes) [5] • Dextrose (10% or less) • Heparin • N-acetylcysteine • Naloxone • Octreotide • Oxytocin • Pantoprazole

PRIMARY WORK SCOPE
• Antibiotics [6] • Crystalloid solution • Dextrose • Diltiazem • Fosphenytoin • Glucagon • Heparin • Insulin (no titration) • Ketamine • Labetolol • Lidocaine • N-acetylcysteine • Naloxone • Octreotide • Oxytocin • Pantoprazole • Phenytoin • Remdesevir • Tocilizumab • Total parenteral nutrition (TPN) [7]

INTERMEDIATE WORK SCOPE
• Amiodarone • Antibiotics • Crystalloid solution • Dextrose • Diltiazem • Fosphenytoin

- Glucagon
- Heparin
- Insulin (with titration) [4]
- N-acetylcysteine
- Naloxone
- Nitroglycerin
- Octreotide
- Oxytocin
- Pantoprazole
- Phenytoin
- Remdesevir
- Tocilizumab
- Total parenteral nutrition (TPN) [7]

Shared health Soins communs Manitoba	A07 - WHO TO CALL (CLINICAL SUPPORT)
	POLICY & PROCEDURE
Version date: 2024-01-14	Effective Date: 2024-02-13 (0700)

HSC PAGING: 204-787-2071	ST. BONIFACE PAGING: 204-237-2053

1. **TRAUMA SUPPORT:** A paramedic will contact the Medical Transportation Coordination Center (MTCC) and request on-line trauma support (OLTS) for any of the following:
   - Required authorization for EMR or PCP to discontinue resuscitation of a traumatic cardiac arrest patient (F02.x).
   - Destination direction for transporting a traumatic cardiac arrest patient with ROSC, or if transporting without ROSC (F02.x).
   - Authorization to bypass for a patient meeting major trauma bypass criteria, and trauma team activation (TTA) when transporting directly to Provincial Trauma Center (B04.x).
   - Delegation to vary a standing medication order (for major trauma patients only).
2. **MEDICAL SUPPORT:** A paramedic will contact MTCC and request on-line medical support (OLMS) for any of the following:
   - Required authorization for EMR or PCP to discontinue resuscitation of an adult patient (C01, C02).
   - Required authorization for EMR, PCP, or ICP to discontinue resuscitation of a pediatric patient (C01, C02).
   - Delegation to vary a standing medication order.
   - A direction in a care map specifically directs you to consult OLMS.
   - A minor patient is refusing treatment and/or transport without an adult custodian present or available (A05).
   - A patient or their proxy is requesting transport to a specific destination for medical reasons without a documented pre-approved destination for this patient (B01).
   - A hospital has reduced its emergency department (ED) services (B02).
   - Before the interfacility transport (IFT) of a patient in labor (D01.2).
   - As soon as possible, all prehospital deliveries, newborn resuscitations, and obstetrical emergencies (section D).
3. A paramedic may contact MTCC to consult OLTS or OLMS at any time for clinical or destination direction, advice, or support.
4. **CODE-STEMI:** For a patient with an ST-segment elevation myocardial infarction (STEMI), a

paramedic will contact MTCC, request the name of the Code-STEMI physician on call, and then contact them directly (E04).

5. **ACUTE STROKE:** For a patient with an acute stroke who meets the criteria for transport to the comprehensive stroke center (HSC), a paramedic will call HSC paging (204-787-2017) and request to speak to the stroke neurologist on call for a "stroke-25 outside call" (E15).
6. LVAD: For a patient with a left ventricular assist device (LVAD), a paramedic will call St. Boniface Hospital paging operator (204-237-2053) and request to speak to the **VAD coordinator** on call (C08).

LINKS	
• A05 – Refusal • B01 – Standard Destination • B02 – Transport Advisory • B04.1 – Trauma Destination (IERHA & SHSS) • B04.2 – Trauma Destination (PMH) • B04.3 – Trauma Destination (NRHA) • C01 – Basic Cardiac Arrest • C02 – Advanced Cardiac Arrest • C08 – LVAD • E04 - ACS / STEMI • E15 - Stroke • F02.1- Basic Trauma Arrest	• F02.2 - Advanced Trauma Arrest • D01.1 Labor Primary Transport • D01.2 – Labor IFT • D02 – Delivery • D03 – Newborn Resuscitation • D04 – Umbilical Cord Prolapse • D05 – Shoulder Dystocia • D06 – Incomplete Breech / Hand • D07 – Frank / Complete Breech • D08 – PPH • D09 – Preeclampsia / Eclampsia

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X01 for change tracking)
• New (replaces A02)

Shared health Soins communs Manitoba	**A08 - WHO CAN GIVE ORDERS (STANDING ORDERS & DELEGATIONS)**
	POLICY & PROCEDURE
Version date: 2023-11-25	Effective Date: 2024-02-13 (0700)

SECTION A: ERS PHYSICIANS

1. An ERS medication document (section M) is a **standing order** from the ERS medical directors. It enables a paramedic to administer a medication under a specified set of conditions which include the indications, contraindications, route, dosing, and frequency of administration.
2. To administer a medication in any way other than that specified by the standing order a paramedic must consult on-line medical support (OLMS) or on-line trauma support (OLTS).
3. A paramedic may accept an order from any of the following individuals:
   a. The on-line medical support (OLMS) or on-line trauma support (OLTS) physician
   b. The EMS Medical Director or Associate Medical Director
   c. The ERS Chief Medical Officer.
4. If appropriate, a **delegation** will be provided to vary from the standing order on a one-time basis. This applies solely for this specific patient and situation.

   The delegation must comply with section 4.8 of the CPMB General Regulation, must be within the paramedic's scope of practice and competency, must be received directly from the physician, and must be documented in the patient care record (PCR) in the required format.

SECTION B: ERS AFFILIATED PHYSICIANS

1. A paramedic may accept an order from any of the following individuals:
   a. The Shock Trauma Air Rescue Service (STARS) or Lifeflight transport physician (TP).
   b. The Winnipeg Fire Paramedic Service (WFPS) Medical Director or Associate Medical Director.
   c. The Code-STEMI physician or interventional cardiologist for issues related to an ST elevation myocardial infarction (STEMI) only.
   d. The stroke neurologist providing medical coverage to a stroke center or telehealth stroke site for issues related to an acute stroke only.
   e. The VAD *cardiologist* for issues related to a left ventricular assist device (LVAD) only.
2. The order is a delegation. It must comply with section 4.8 of the CPMB General Regulation, must be within the paramedic's scope of practice and competency, must be received directly from the physician, and must be documented in the PCR in the required format.

SECTION C: INTERFACILITY TRANSFERS

1. For clinical care that may reasonably anticipated to be required during an interfacility transfer (IFT) and is not already covered by a care map or medication document, a written order must be obtained from the referring physician.
2. The order is a delegation. It must comply with section 4.8 of the CPMB General Regulation and must be within the paramedic's scope of practice and competency. A copy of the order must accompany the patient and remain attached to the patient care record (PCR).
3. In an exigent circumstance (eg. unanticipated critical or time-sensitive issues) the delegation may be conveyed verbally. It must be received directly from the physician and must be documented in the PCR in the required format.

SECTION D: ON-SCENE PHYSICIAN

1. **A paramedic has a responsibility to not carry out an order that they reasonably believe to be inaccurate, incorrect, or inappropriate to the patient and situation.**
2. An individual on-scene who self-identifies as a physician may be able to provide expertise and experience to assist with life-saving care. They cannot require a paramedic to deviate from ERS clinical policies & procedures, patient care maps, medication standing orders, or destination protocols. However, a paramedic may collaborate with them in the best interests of the patient.
3. A paramedic may accept an order from such an individual under the following conditions:
    a. The clinical circumstances are not already covered (or better covered) by an ERS care map or medication standing order.
    b. The paramedic reasonably believes that the individual is a qualified medical practitioner who is competent to give the delegation. The paramedic is not required to verify the individual's registration status or clinical competency.
    c. The individual will remain available for consultation until the patient's care is transferred to the appropriate next level of care. This will usually require the individual to accompany the patient during transport.
4. The order is a delegation. It must comply with section 4.8 of the CPMB General Regulation and must be within the paramedic's scope of practice and competency. The delegation must be documented in the PCR in the required format and the individual must be requested to sign the PCR.
5. If the individual performs a reserved act that is beyond the scope or competency of a paramedic they remain responsible for the ongoing care of the patient related to that reserved act.
6. If the physician performs a reserved act that falls within the scope and competency of the paramedic the paramedic can accept a transfer of care of the patient and OLMS or OLTS can provide for ongoing consultation if required.

SECTION E: DELEGATIONS
1. An EMR cannot accept any delegation beyond their usual scope of work, even with a physician's order. 2. A PCP or ICP cannot accept a delegation from the following individuals: a. The superintendent or supervisor (OCS). b. The LVAD nurse coordinator. c. A non-prescribing provider (eg. registered nurse, CT technician) in a referring facility. 3. A paramedic cannot accept a medication order or a delegation to vary a medication standing order from another paramedic.

LINKS / REFERENCES
A01 - EMS OVERVIEW A07 - WHO TO CALL FOR CLINICAL SUPPORT CPMB PRACTICE DIRECTION - DELEGATION OF RESERVED ACTS

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X01 for change tracking)
• New (extracted from A02)

Shared health Soins communs Manitoba	**A09 - AEROSOL GENERATING MEDICAL PROCEDURES**
	POLICIES & PROCEDURES
Version date: 2024-01-12	Effective Date: 2024-02-13 (0700)

	PROHIBITED	

- **KOWN / SUSPECTED COVID** [3]
  - CPAP ventilation
  - PPV without a sealed airway

	PERMITTED <u>WITH EXTENDED PPE ONLY</u>	

- Intranasal & sublingual medication administration
- Epinephrine by nebulizer for known or suspected croup
- Salbutamol by nebulizer for asthma <u>up to 5 years of age</u> [4]
- Neonatal resuscitation, including PPV <u>without</u> sealed airway [5]
- Placement and maintenance of blind insertion airway (BIAD) & placement of gastric tube through BIAD
- Abdominal / chest thrusts or suctioning of oropharynx for obstructed airway
- Suctioning or replacement of tracheostomy tube
- Foreign body removal from airway with finger sweep or forceps
- Needle decompression or tube thoracostomy for tension pneumothorax
- PPV without sealed airway *(excluding known / suspected COVID)* [6]
- CPAP ventilation *(excluding known / suspected COVID)* [6]
- PPV with sealed airway [7]

	PERMITTED	

- Chest compressions [8]
- Defibrillation / cardioversion / transcutaneous pacing [8]
- Oxygen delivery with maximum O_2 flow rate up to 15 liters per minute [9]

NOTES

1. Extended personal protective equipment (PPE) is required for any aerosol-generating medical procedures (AGMP) for patients known or reasonably suspected of having a potentially transmissible respiratory infection.

   For the purposes of this protocol transmissible respiratory infections include all of the following conditions:
   - Coronavirus disease 2019 (COVID-19)
   - Influenza virus or influenza-like illness (ILI)
   - Respiratory syncytial virus (RSV)
   - Mycobacterium tuberculosis (TB)

2. Except for life-threatening situations, AGMP should be avoided in public spaces for these patients. If possible defer AGMP until the patient is in the ambulance. If it cannot be delayed, instruct bystanders to leave or move back as far as possible.

3. KNOWN / SUSPECTED COVID:

   For the purposes of this protocol, a patient will be considered to have or possibly have COVID infection if they have tested positive in the preceding ten days by PCR or self-administered RAD, or if their status is unknown but COVID is reasonably suspected based on the patient's clinical presentation (appendix A) or known exposure.

   A patient can be considered unlikely to have COVID infection if they have tested negative that day (by PCR or RAD administered by a health care provider) and the patient's status is unknown but COVID is reasonably not suspected based on circumstances leading up to the event.

4. For young children who may not cooperate with metered-dose inhaler (MDI) administration, the risk of aerosol generation is likely lower with nebulizer administration.

5. During newborn resuscitation positive pressure ventilation (PPV) can be performed without a sealed airway during newborn resuscitation, regardless of the mother's COVID status.

6. Do not perform continuous positive airway pressure (CPAP) ventilation or PPV without first sealing the airway in a patient with a known or suspected COVID infection.

7. If providing PPV with a sealed airway in a patient known or suspected to have COVID, inform receiving hospital staff prior to arrival.

8. During cardiopulmonary resuscitation (CPR) airway manipulation is the main source for generation of aerosols. Defibrillation and chest compressions are not considered significant causes of aerosol production.

   If CPR may potentially be required during transport, paramedics should don extended PPE prior to transporting.

   In the event of an unanticipated cardiac arrest if providers are not already wearing extended PPE, one paramedic will perform initial defibrillation and chest compressions, while the second individual steps back or exits the vehicle and dons extended PPE. Paramedics will then reverse roles to allow the other to don extended PPE.

9. Cover the patient's nose and mouth with a procedure mask over top of the oxygen delivery equipment.

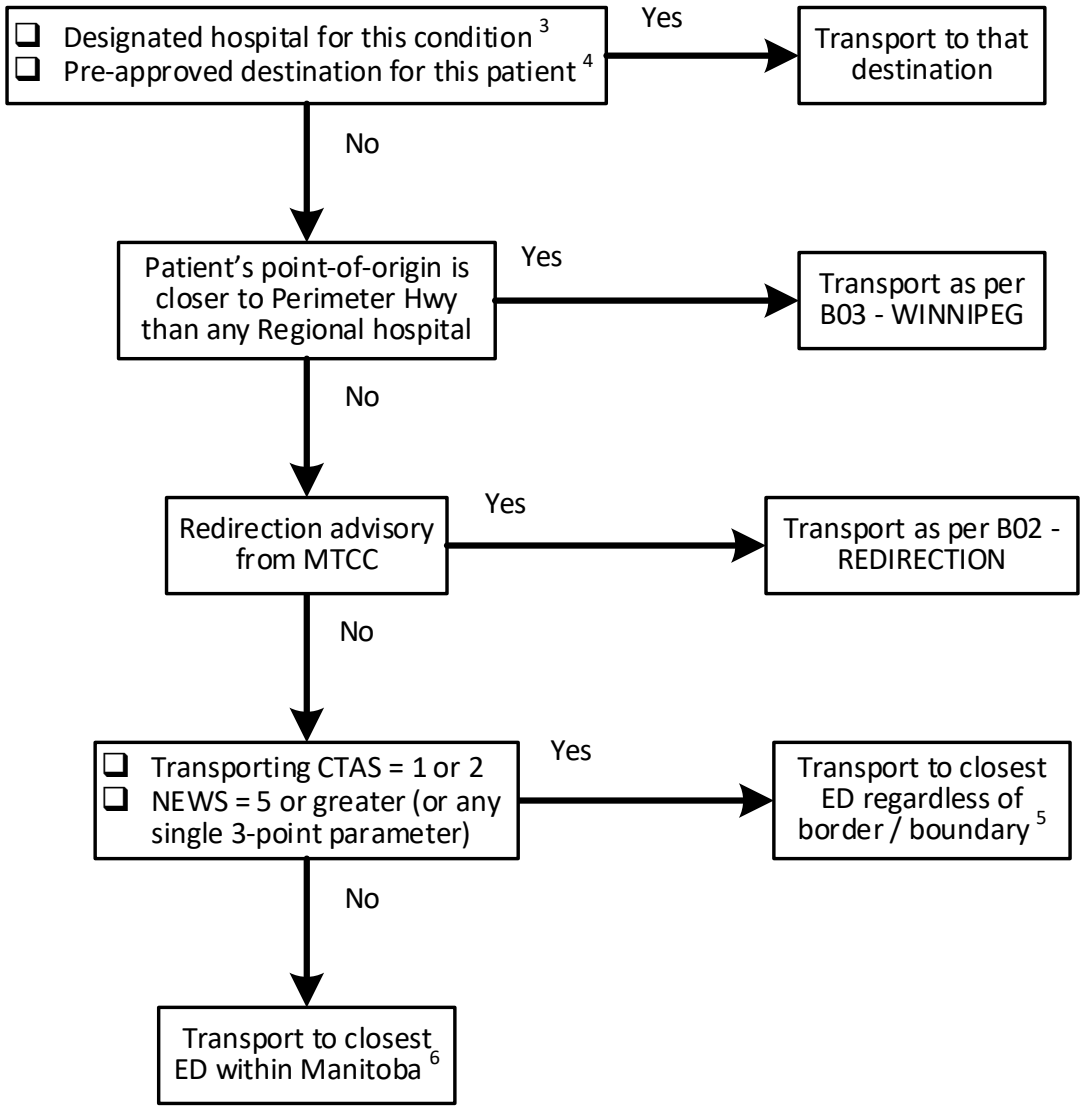
LINKS	
• C01 - BASIC RESUSCITATION • C02 - ADVANCED RESUSCITATION • C11 - AIRWAY OBSTRUCTION	• E07 - ASTHMA / COPD • E08 - ACUTE HEART FAILURE • E09 - RESPIRATORY DISTRESS OF UNKNOWN CAUSE

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X01 for change tracking)
• Inclusion of influenza, ILI, RSV, and TB • Correction of CPAP when COVID not suspected (removal of “on interfacility transfer”)

APPENDIX A: SYMPTOMS & SIGNS SUSPICIOUS FOR COVID INFECTION
• Fever / chills • Cough (or increased severity of chronic cough) • Shortness of breath / difficulty breathing • Hypoxemia / hypoxemia * • Sore throat / hoarse voice * • Runny nose • Headache * • Muscle aches * • Loss of smell / taste • Conjunctivitis • Nausea / Loss of appetite • Poor feeding in infants • Diarrhea / vomiting for more than 24 hours • Fatigue • Skin rash of unknown cause (*) Not due to trauma, exercise, or sport

Shared health Soins communs Manitoba	B01 - STANDARD DESTINATION	
	All ages	DESTINATION
Version date: 2024-01-16		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS
• All primary response calls

CONTRAINDICATIONS
• Not applicable

NOTES

1. An emergency department (ED) is considered to be "closest" if it has the shortest estimated transport *time* from the patient's current location. Estimated transport time must be based on safe vehicular speed. Non-clinical issues affecting patient, provider, and public safety such as road and weather conditions will be at the discretion of the vehicle operator.

   When two destinations have similar transport times, the closest is that which has the shortest estimated transport *distance* from the patient's current location.

   When two destinations have similar transport times and distances, paramedics should consider transport to the ED in the direction of the most likely referral center, in the event that an interfacility transfer (IFT) may subsequently be required.

   Medical Transportation Coordination Centre (MTCC) personnel can advise paramedics regarding the location and status of the closest ED.
2. Except as noted in below, patients or their proxies cannot request transport to a particular destination out of convenience or preference.
3. A facility may be the *designated hospital* for the management of a specific condition (table A). A patient with a chief complaint related to that condition cannot be redirected.
4. As some conditions that require special equipment or expertise, a patient's physician may request transport to a specific destination. This must be done in advance and requires approval by ERS, who will provide paramedics with notification or documentation for transport to that *pre-approved destination*. In the absence of such documentation paramedics will should consult on-line medical support (OLMS) or transport to the closest ED.
5. Patients with a transporting Canadian Triage Acuity Scale (CTAS) level of 1 or 2 (appendix A), or a cumulative National Early Warning Score (NEWS-2) of 5 or greater, or a score of 3 for any single NEWS-2 parameter (appendix B) will be taken to the closest ED regardless of the Provincial border or Health Region boundary for urgent / emergent medical assessment.
6. Patients with a transporting CTAS level of 3 to 5 and a NEWS-2 score of 4 or less and no single 3-point score will be transported to the closest ED within Manitoba.
7. Paramedics will ensure appropriate pre-arrival notification of receiving facility staff and update as necessary.

TABLE A: CARE MAPS WITH SPECIFIC DESTINATIONS & DESTINATIONS FOR PRIMARY RESPONSE	
Trauma in IERHA or SHSS geographic areas	B04.1 - TRAUMA DESTINATION (IERHA & SHSS)
Trauma in PMH geographic area	B04.2 - TRAUMA DESTINATION (PMH)
Trauma in NRHA area	B04.3 - TRAUMA DESTINATION (NRHA)
Palliative Care Admission	B05 - TRANSPORT FOR DIRECT ADMISSION TO PALLIATIVE CARE
Cardiac arrest	C01 / C02 - BASIC & ADVANCED CARDIAC ARREST
Traumatic Cardiac Arrest	F02.1 / F02.2 - BASIC & ADVANCED TRAUMA CARDIAC ARREST
Left ventricular assist Device (LVAD)	C08AB - LVAD
ST elevation myocardial infarction (STEMI)	E04A - ACS & STEMI
Acute stroke	E15A - ACUTE STROKE

LINKS
A08 - WHO CAN GIVE ORDERS (STANDING ORDERS & DELEGATIONS) B02 - REDIRECTION ADVISORY B03 - DESTINATION WHEN THE CLOSEST ED IS IN WINNIPEG

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X02 for change tracking)
• Simplified flow chart & revised notes • CTAS scoring and NEWS-2 implemented • Identifier legend at bottom of flow chart replaces work scope statement in header

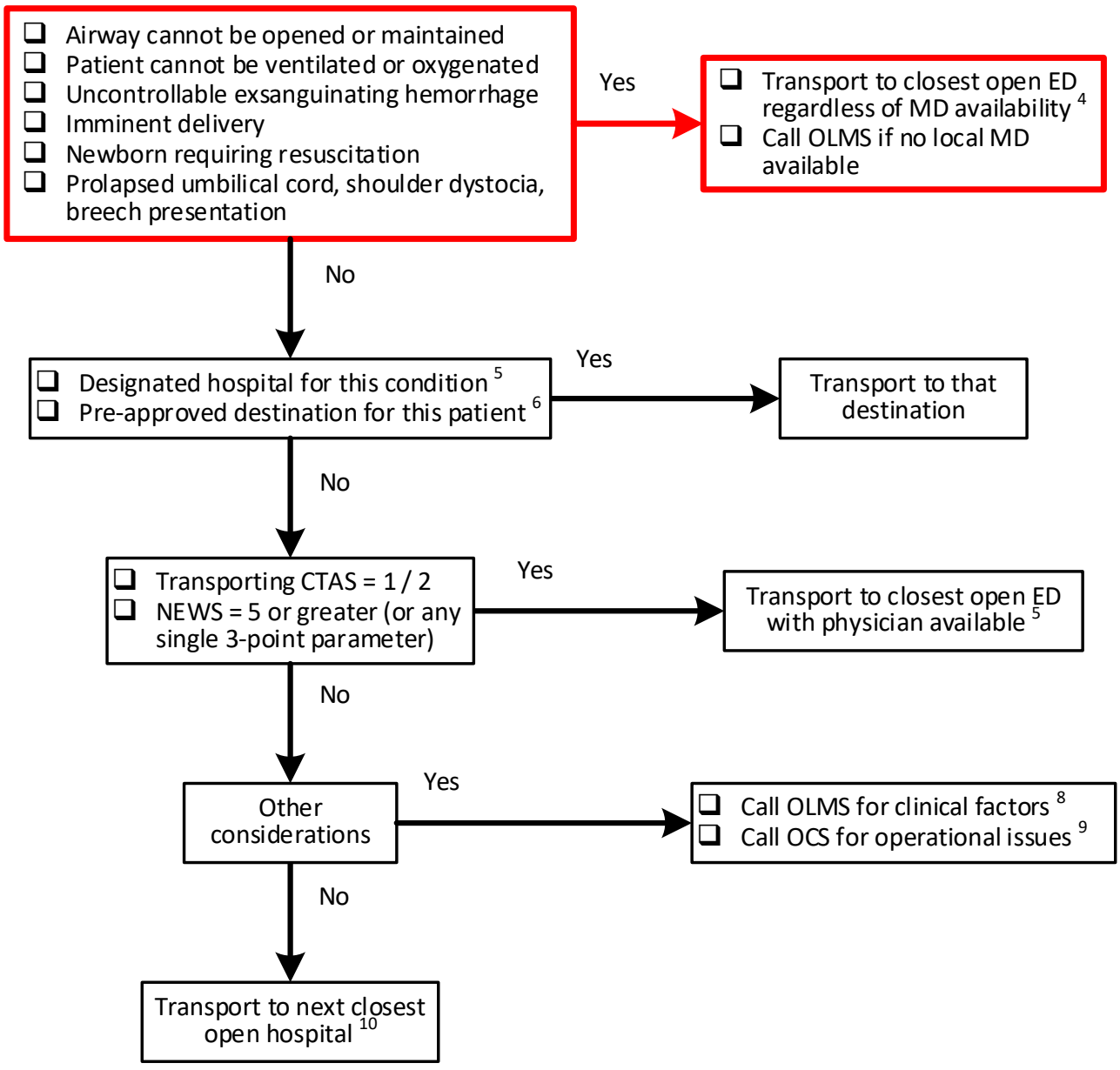
APPENDIX A: CANADIAN TRIAGE & ACUITY SCORE (CTAS)		
Prehospital CTAS Level	**Maximum Time to MD Assessment**	**Target (% of all patients)**
1	Immediate	98
2	15 minutes	95
3	30 minutes	90
4	1 hour	85
5	2 hours	80

APPENDIX B: NATIONAL EARLY WARNING SCORE (NEWS2)

Physiological parameter	Score 3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

1. SPO2 SCALE 2: For patients with hypercapnic respiratory failure, most commonly due to COPD) scale represents the ideal SpO2 of 88 to 92% for patients receiving supplemental oxygen. Paramedics should use sclae 2 for all patients on home oxygen therapy.
2. CVPU: New onset of confusion, responsiveness to voice or pain, or unresponsiveness.

Shared health Soins communs Manitoba	B02 - REDIRECTION ADVISORY	
	All ages	DESTINATION
Version date: 2024-01-16		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - all providers

INDICATIONS
• The closest emergency department (ED) has requested a redirection advisory

CONTRAINDICATIONS
• Not applicable

NOTES

1. An emergency department (ED) will be considered "open" to patients arriving by EMS if it is accepting patients who walk-in or self-present without EMS.
2. An ED will be considered "closest" if it has the shortest estimated transport *time* from the patient's current location. Transport time must be based on safe vehicular speed. Non-clinical issues affecting patient, provider, and public safety such as road and weather conditions will be at the discretion of the vehicle operator.

   When two facilities have similar transport times, the closest will be that which has the shortest estimated transport *distance* from the patient's current location.

   When two destinations have similar transport times and distances, paramedics should consider transport *in the direction of the most likely referral centre*, in the event that an interfacility transfer (IFT) may subsequently be required.

   Medical Transportation Coordination Centre (MTCC) personnel can advise regarding the location and status of the closest destination.
3. Staff at a hospital outside of Winnipeg will notify MTCC when there is reduction in emergency services at their ED. In response, ERS will issue a *redirection advisory* for that facility. MTCC will inform transporting paramedics. Paramedics cannot accept destination direction from facility staff.
4. For these critical conditions, transport to a higher level of care or better resourced environment (more "hands", stable platform, reliable communications) may be the best course of action, even in the absence of a physician.
5. A facility may be the *designated hospital* for the management of a specific condition (table A, B01- DESTINATION). With the exception of Health Sciences Center (HSC) which may redirect certain non-trauma patients to maintain its trauma capacity, a hospital cannot redirect patients with the condition for which it is designated.
6. As some medical conditions require special equipment or expertise, a patient's physician may request transport to a specific destination. This must be done in advance and requires approval by ERS, who will provide paramedics with notification or documentation for transport to that pre-approved destination. In the absence of such documentation paramedics should consult on-line medical support (OLMS) or transport to the closest ED.
7. Patients with a transporting Canadian Triage Acuity Scale (CTAS) level of 1 or 2 (appendix A), or a cumulative National Early Warning Score (NEWS-2) of 5 or greater, or a score of 3 for any single NEWS-2 parameter (appendix B) will be taken to the closest open ED where a physician is most promptly available for urgent / emergent medical assessment.

   If the reason for the ED service reduction is the *temporar*y absence of the physician (such as due to an IFT) and they will become available in less time that it will take to transport to an alternate site, paramedics will transport to the closer ED and remain with the patient until the physician returns.

8. These may include patient age or mobility, the nature and severity of symptom(s), the ability to return home after discharge, and the impact of a longer transport duration of patient safety or well-being. On-line medical support (OLMS) may involve the on-call supervisor (OCS) as necessary.
9. These may include transport conditions (road / weather), excessive transport times, multiple adjacent redirections, EMS call volume & capacity, staffing and paramedic fatigue.
10. A patient or their proxy must be informed if being redirected and must provide consent.
11. Paramedics will ensure the appropriate pre-arrival notification of staff at the receiving hospital and provide updates as necessary.

LINKS
B01 - STANDARD DESTINATION B03 - DESTINATION WHEN THE CLOSEST ED IS IN WINNIPEG

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X02 for change tracking)

• Revised flow chart & notes
  ○ Destination based on CTAS level & NEWS-2 for standardization
  ○ Definition of “open” ED added
• Tension pneumothorax removed from first box (covered by second box as need to go to site with MD)
• Instruction to call OCS for operational issues
• Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: CANADIAN TRIAGE & ACUITY SCALE (CTAS)		
Prehospital CTAS Level	**Max Time to MD Assessment**	**Population Target (%)**
1	Immediate	98
2	15 minutes	95
3	30 minutes	90
4	1 hour	85
5	2 hours	80

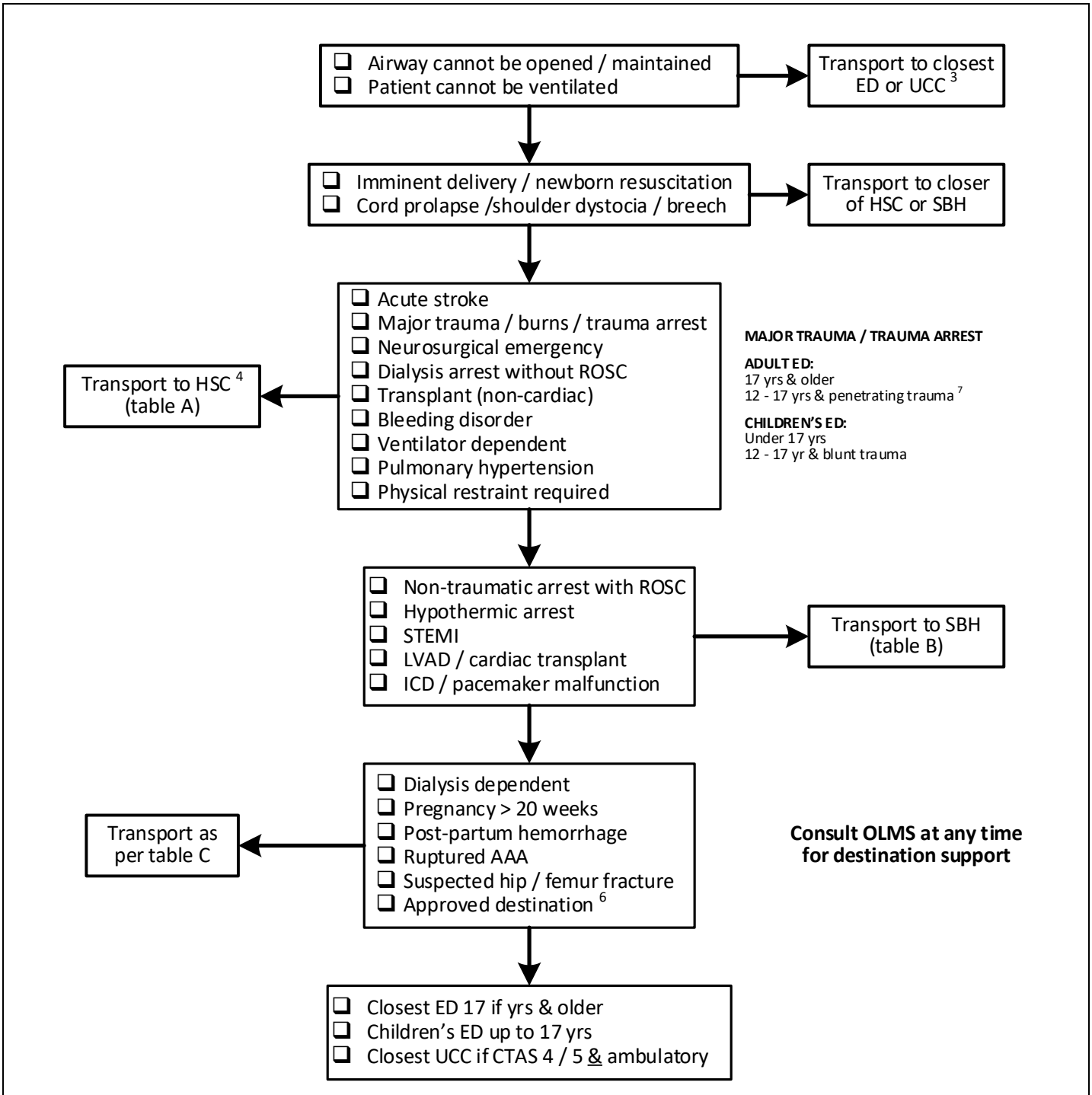
APPENDIX B: NATIONAL EARLY WARNING SCORE (NEWS-2)

Physiological parameter	Score 3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

SpO_2 SCALE 2: For patients with hypercapnic respiratory failure, most commonly due to COPD) scale represents the ideal SpO_2 of 88 to 92% for patients receiving supplemental oxygen. Paramedics should use sclae 2 for all patients on home oxygen therapy.

CVPU: New onset of confusion, responsiveness to voice or pain, or unresponsiveness.

Shared health Soins communs Manitoba	B03 - DESTINATION WHEN THE CLOSEST ED IS IN WINNIPEG	
	All ages	DESTINATION
Version date: 2023-12-07		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• All patients whose point of origin is closer to the Perimeter Highway than any other regional health care facility [1]

CONTRAINDICATIONS
• Not applicable

NOTES

1. An emergency department (ED) is considered closest if it has the shortest estimated transport *time* from the patient's current location. When two facilities have similar transport times, closest is that which has the shortest estimated transport *distance* from the patient's current location.
2. Provincial Trunk Highways #100 and #101 are collectively referred to as Winnipeg Perimeter Highway (Perimeter Hwy) and constitute the geographic boundary of the Winnipeg Regional Health Authority (WRHA).

   EXAMPLE: Middlechurch Personal Care Home is closer to the Perimeter Highway than it is to any other ED, is part of the WRHA, and within the WRHA catchment area.
3. Winnipeg urgent care centres (UCC) at Seven Oaks Hospital (SOH), Concordia Hospital (CH) and Victoria Hospital (VH) have appropriate personnel, equipment and expertise for the initial stabilization of patients with critical issues related to airway and ventilatory management.
4. In exceptional circumstances, such as a mass casualty incident (MCI), certain patients may be redirected to preserve trauma capacity.
5. Patients or their proxies cannot request transport to a particular destination out of convenience or preference.
6. Some conditions that require special equipment or expertise. A patient's physician may request transport to a specific destination. This must be done in advance and requires approval by ERS, who will provide paramedics with notification or documentation for transport to that approved destination. In the absence of such documentation paramedics will should consult on-line medical support (OLMS) or transport to the closest ED.
7. Patients 12 up to 17 years of age with penetrating trauma can only be rerouted to Children's ED at the direction of trauma team leader, HSC emergency physician, or OLMS.
8. Paramedics will ensure appropriate pre-arrival notification of receiving facility staff and update as necessary. OLMS may facilitate communications with receiving facility staff.

TABLE A - HEALTH SCIENCES CENTRE (HSC)
ADULT ED: • Traumatic cardiac arrest regardless of ROSC status • Cardiac arrest in a dialysis patient who does not achieve ROSC prior to hospital arrival • Major trauma or major burn(s) who meet the field triage criteria for bypass & direct transport • Acute neurosurgical condition • Non-cardiac transplant regardless of the complaint • Bleeding disorder (e.g., Hemophilia, von Willebrand's disease) regardless of the complaint • Long-term mechanical ventilation (ventilator dependent) regardless of the complaint • Pulmonary hypertension on Flolan or Remodulin by continuous infusion regardless of the complaint • Physical restraint necessary to protect the patient and providers
CHILDREN'S ED: • All patients up to 16 years & 364 days

TABLE B - ST. BONIFACE HOSPITAL (SBH)
• Non-traumatic cardiac arrest with the return of spontaneous circulation (ROSC) - 17 years and older • Hypothermic cardiac arrest regardless of ROSC status • Left ventricular assist device (LVAD) regardless of the complaint, excluding trauma • Cardiac transplant regardless of the complaint, excluding trauma • Malfunction of an implantable cardiac defibrillator (ICD) or pacemaker • ST-segment myocardial infarction (STEMI) without pre-arrival consultation to the Code STEMI physician (if directed, bypass the ED and transport directly to the cath lab)

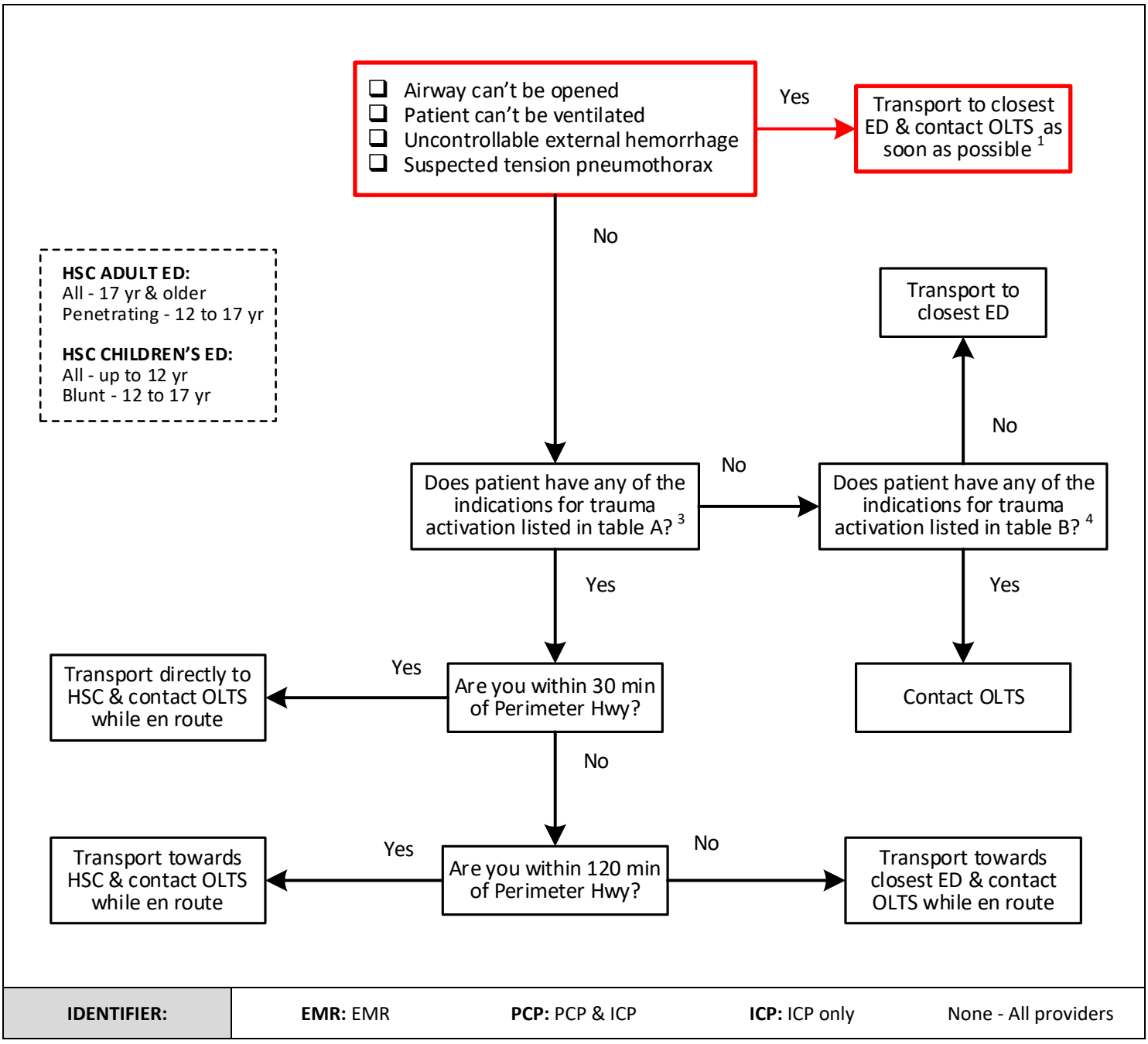
TABLE C - PRIMARY DESTINATION		
Known or suspected ruptured abdominal aortic aneurysm		Closest vascular surgery site (HSC or SBH)
Pregnancy with estimated gestational age > 20 wks		Scheduled delivery site (HSC or SBH)
Post-partum hemorrhage up to 6 weeks post delivery		Site where delivery occurred (HSC or SBH)
Hemodialysis or peritoneal dialysis (dialysis dependent)		Primary dialysis site (HSC, SBH or SOH)
Known or suspected hip / femur fracture (excluding major trauma)	Monday / Wednesday / Friday	Concordia Hospital
	Sunday / Tuesday / Thursday	Grace Hospital
	Saturday	Closest of Grace or Concordia Hospitals
Specialized medical condition destination directive approved in advance by ERS [5]		As approved

LINKS
B01 - STANDARD DESTINASTION B02 - REDIRECTION ADVISORY

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X02 for change tracking)
• Obstetrical & neonatal emergencies will be transported to the closest of HSC or SBH • Known or suspected hip / femur fractures will be transported to GH or CH depending on day of the week • Selected patients (CTAS 4 / 5 and ambulatory) may be transported to urgent care • Minor reorganization of flow chart & tables

Shared health Soins communs Manitoba	B04.1 - TRAUMA DESTINATION FOR IERHA & SHSS GEOGRAPHIC AREAS	
	All ages	DESTINATION
Version date: 2024-04-10		Effective Date: 2024-05-15 (0700)



IDENTIFIER:	EMR: EMR	PCP: PCP & ICP	ICP: ICP only	None - All providers

TABLE A: INDICATORS FOR TRANSPORT TO TRAUMA CENTER [3]

ANATOMICAL

PENETRATING INJURIES:

- Head or neck
- Chest, shoulder, or axilla
- Abdomen or groin
- Extremities proximal to elbow or knee

BLUNT INJURIES:

- **CHEST:**
  - Flail chest
  - Sucking chest wound
  - Tension pneumothorax
- **PELVIS / EXTREMITY:**
  - Two or more long bone fractures proximal to elbow or knee (eg. humerus & femur)
  - Open fracture or open dislocation
  - Fracture or dislocation with no pulse in affected limb
  - Major amputation of extremity proximal to wrist or ankle
  - Crushed, de-gloved, mangled, or pulseless extremity
  - Major extremity hemorrhage (requiring tourniquet to control bleeding)
  - Open book pelvic fractures / injuries
- **HEAD / SPINE:**
  - Paraplegia or quadriplegia
  - Open or depressed skull fracture(s)
  - Focal neurological deficit with evidence of head trauma

MAJOR BURNS:

- Body surface area greater than 20% (any thickness)
- Critical location (face, neck, hands, feet, perineum)
- Potential airway involvement
- High voltage electrical burns

OTHER:

- Pregnancy greater than 20 weeks gestation with any apparent injury (excluding minor extremity injuries)

PHYSIOLOGICAL

UNSTABLE VITAL SIGNS:

- GCS less than or equal to 13 with evidence of head trauma
- SBP less than 90 mmHg (adult)
- Heart rate greater than 120 beats per minute (adults)
- RR less than 10 or greater than 29 breaths per minute (12 months or older)
- RR less than 20 breaths per minute in infants (up to 12 months)

TABLE B: MOI INDICATORS / SPECIAL CONSIDERATIONS FOR TRANSPORT TO TRAUMA CENTER [4]

FALLS:

- Adults - greater than 10 feet or one building story
- Children - greater than two times the height of the child

HIGH-ENERGY AUTO COLLISION:

- Intrusion into occupant site (passenger compartment) greater than 12 inches
- Intrusion into any site on the vehicle greater than 18 inches
- Ejection (partial or complete) from automobile
- Death in the same passenger compartment
- Vehicle telemetry data consistent with high risk of injury

AUTO VERSUS PEDESTRIAN / CYCLIST:

- Victim thrown or run-over
- Impact between vehicle and victim greater than 30 kilometers per hour
- Motorcycle crash greater than 30 kilometers per hour (without controlled slide)

SPECIAL CONSIDERATIONS:

- Patients on anticoagulants, or with bleeding disorders (e.g., Hemophilia, von Willebrand's disease)
- Pregnancy greater than 20 weeks gestation without apparent injury
- Significant injury in the same passenger compartment

INDICATIONS

- Major trauma where the incident has occurred within the geographic boundaries of the Interlake-Eastern Regional Health Authority (IERHA) or the Southern Health - Santé Sud regional health authority

CONTRAINDICATIONS

- Not applicable

NOTES

1. Transport to the closest emergency department (ED) <u>regardless of physician availability or redirection status</u>. Paramedics can over-ride a redirection advisory (diversion) for these critical conditions. Contact MTCC and request **on-line trauma support** (OLTS) as soon as possible.

   Survival is measured in minutes. If these cannot be resolved with the personnel, equipment, and expertise available on scene, emergency transport to a higher level of care or a better-resourced environment will be required. For most patients the benefits of additional "hands", a stable treatment platform, and reliable communications outweigh the disadvantage of no physician.

2. Contact MTCC and request OLTS for all trauma patients who meet any of the criteria in tables A or B regardless of your geographic location. Where indicated OLTS will conference in the transport physician (TP) for consideration of air intercept, and provide trauma team activation (TTA) to HSC emergency personnel.

   Appendix A contains the information required for advance notification and patient pre-registration.

3. Patients with any of the anatomical or physiological indicators listed in table A require assessment by the trauma team at the Health Sciences Center (HSC).
   a. If you are within 30 minutes of the Perimeter Highway proceed directly to HSC and request OLTS as soon as possible during transport.
   b. If you are 30 to 120 minutes from the Perimeter Highway initiate transport towards HSC. Request OLTS as soon as possible during transport. You may be advised to continue to HSC. Alternatively, you may be redirected to an alternate destination for air intercept.
   c. If you are beyond 120 minutes initiate transport towards the closest ED. Request OLTS as soon as possible and transport as advised.
4. Patients with any of the mechanism of injury indicators (MOI) or special consideration listed in table B may require assessment by the HSC trauma team. OLTS may direct you to an alternate destination for an initial medical assessment.

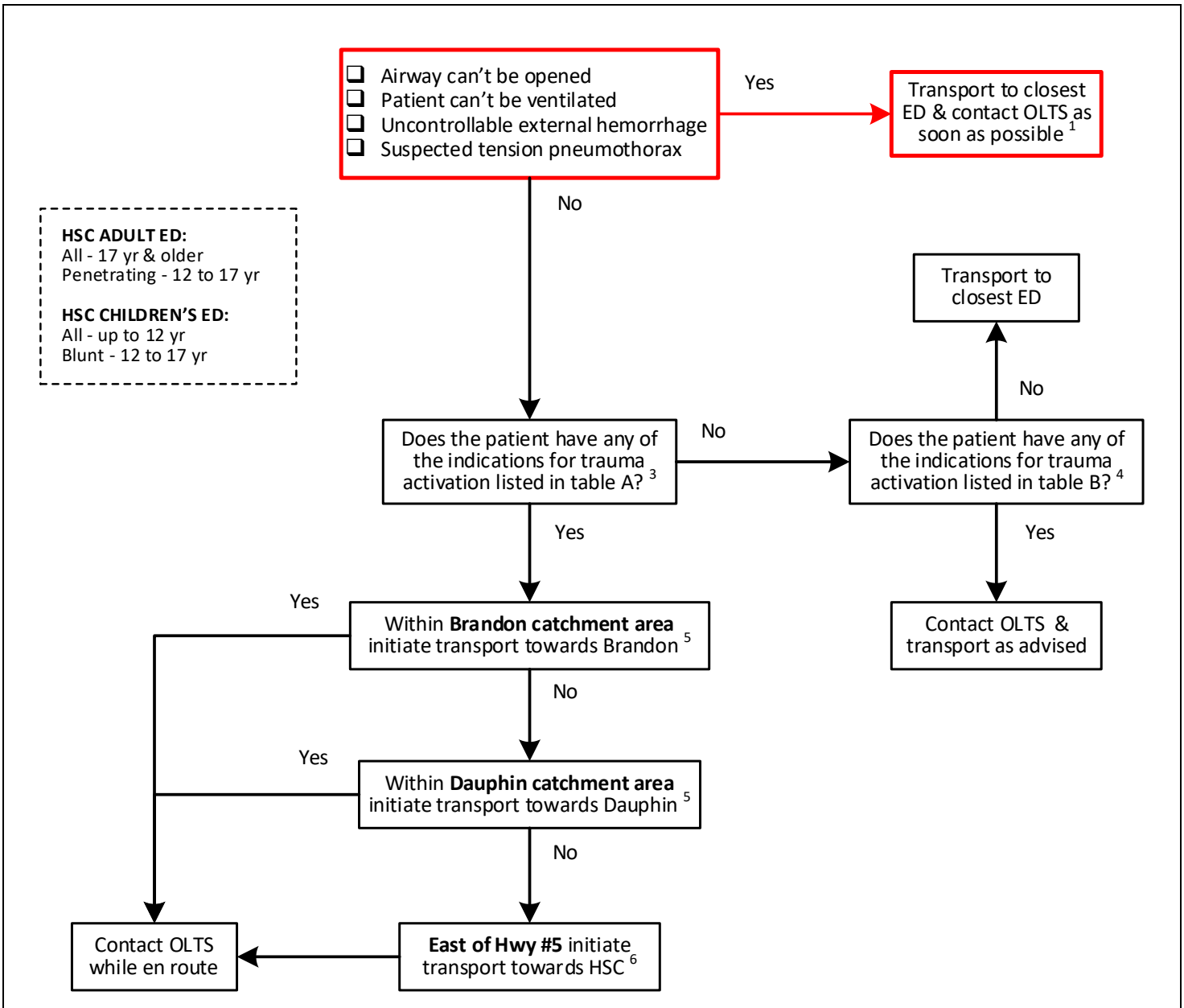
LINKS
• B01 - STANDARD DESTINATION • B02 - REDIRECTION ADVISORY • B03 - DESTINATION WHEN CLOSEST ED IS IN WINNIPEG • F01 - TRAUMA

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X02 for change tracking)
• Clarification to call MTCC and request OLTS

APPENDIX A - INFORMATION REQUIRED FOR TRAUMA TEAM ACTIVATION
• Age • Gender • Mechanism of injury *(blunt versus penetrating)* • GCS • HR • BP • RR • SaO_2 *(indicate if supplemental O_2 required)* • Glucose *(if relevant)* • Scene location • Estimated transport time to trauma center or closest ED • Brief description of injuries • Brief summary of prehospital actions and interventions • Patient identifiers *(as many as possible of name / DOB / PHIN)*

7 Shared health Soins communs Manitoba	B04.2 - TRAUMA DESTINATION FOR PMH GEOGRAPHIC AREA	
	All ages	DESTINATION
Version date: 2024-04-10		Effective Date: 2024-05-15 (0700)



IDENTIFIER:	EMR: EMR	PCP: PCP & ICP	ICP: ICP only	None - All providers

TABLE A: INDICATORS FOR DIRECT TRANSPORT TO TRAUMA CENTER [3]

ANATOMICAL

PENETRATING INJURIES:

- Head or neck
- Chest, shoulder, or axilla
- Abdomen or groin
- Extremities proximal to elbow or knee

BLUNT INJURIES:

- **CHEST:**
  - Flail chest
  - Sucking chest wound
  - Tension pneumothorax
- **PELVIS / EXTREMITY:**
  - Two or more long bone fractures proximal to elbow or knee (eg. humerus & femur)
  - Open fracture or open dislocation
  - Fracture or dislocation with no pulse in affected limb
  - Major amputation of extremity proximal to wrist or ankle
  - Crushed, de-gloved, mangled, or pulseless extremity
  - Major extremity hemorrhage (requiring tourniquet to control bleeding)
  - Open book pelvic fractures / injuries
- **HEAD / SPINE:**
  - Paraplegia or quadriplegia
  - Open or depressed skull fracture(s)
  - Focal neurological deficit with evidence of head trauma

MAJOR BURNS:

- Body surface area greater than 20% (any thickness)
- Critical location (face, neck, hands, feet, perineum)
- Potential airway involvement
- High voltage electrical burns

OTHER:

- Pregnancy greater than 20 weeks gestation with any apparent injury (excluding minor extremity injuries)

PHYSIOLOGICAL

UNSTABLE VITAL SIGNS:

- GCS less than or equal to 13 with evidence of head trauma
- SBP less than 90 mmHg (adult)
- Heart rate greater than 120 beats per minute (adults)
- RR less than 10 or greater than 29 breaths per minute (12 months or older)
- RR less than 20 breaths per minute in infants (up to 12 months)

TABLE B: MOI INDICATORS / SPECIAL CONSIDERATIONS FOR DIRECT TRANSPORT TO TRAUMA CENTER [4]

FALLS:

- Adults - greater than 10 feet or one building story
- Children - greater than two times the height of the child

HIGH-ENERGY AUTO COLLISION:

- Intrusion into occupant site (passenger compartment) greater than 12 inches
- Intrusion into any site on the vehicle greater than 18 inches
- Ejection (partial or complete) from automobile
- Death in the same passenger compartment
- Vehicle telemetry data consistent with high risk of injury

AUTO VERSUS PEDESTRIAN / CYCLIST:

- Victim thrown or run-over
- Impact between vehicle and victim greater than 30 kilometers per hour
- Motorcycle crash greater than 30 kilometers per hour (without controlled slide)

SPECIAL CONSIDERATIONS:

- Patients on anticoagulants, or with bleeding disorders (e.g., Hemophilia, von Willebrand's disease)
- Pregnancy greater than 20 weeks gestation without apparent injury
- Significant injury in the same passenger compartment

INDICATIONS

- Major trauma where the incident has occurred within the geographic boundaries of the Prairie Mountain Health (PMH) regional health authority.

CONTRAINDICATIONS

- Not applicable

NOTES

1. Transport to the closest emergency department (ED) regardless of physician availability or redirection status. Paramedics can over-ride a redirection advisory for these critical conditions. Contact MTCC and request **on-line trauma support** (OLTS) as soon as possible.

   Survival is measured in minutes. If these cannot be resolved with the personnel, equipment, and expertise available on scene, emergency transport to a higher level of care or a better-resourced environment will be required. For most patients the benefits of additional "hands", a stable treatment platform, and reliable communications outweigh the disadvantage of no physician.

2. Contact MTCC and request OLTS for all trauma patients who meet any of the criteria in tables A or B regardless of your geographic location. Where indicated OLTS will conference in the transport physician (TP) for consideration of air intercept, and provide trauma team activation (TTA) to HSC emergency personnel.

   Appendix A contains the information required for trauma activation and patient pre-registration.

3. Patients with any of the anatomical or physiological indicators listed in table A require assessment by the trauma team at the Health Sciences Center (HSC). Initiate transport as indicated. Request OLTS as soon as possible and transport as advised. You may be redirected to an alternate destination for air intercept.
4. Patients with any of the mechanism of injury (MOI) indicators or special considerations listed in table B may require assessment by the HSC trauma team. OLTS may direct you to an alternate destination for an initial medical assessment.
5. The north / south divide between the Dauphin and Brandon catchment areas follows a course north of Russell along the southern boundary of Riding Mountain National, and south of McCreary. Note that within the southern parts of Riding Mountain National Park (eg. Clear Lake) road and weather conditions may require transport south to Brandon (appendix B).

   EXAMPLE: McCreary and Inglis fall within the Dauphin catchment area.
6. The east / west divide between the Brandon and Winnipeg catchment areas is just to the east of Provincial Highway #5 (appendix B).

   EXAMPLE: Russell, Riding Mountain and Neepawa, fall within the Brandon catchment area.

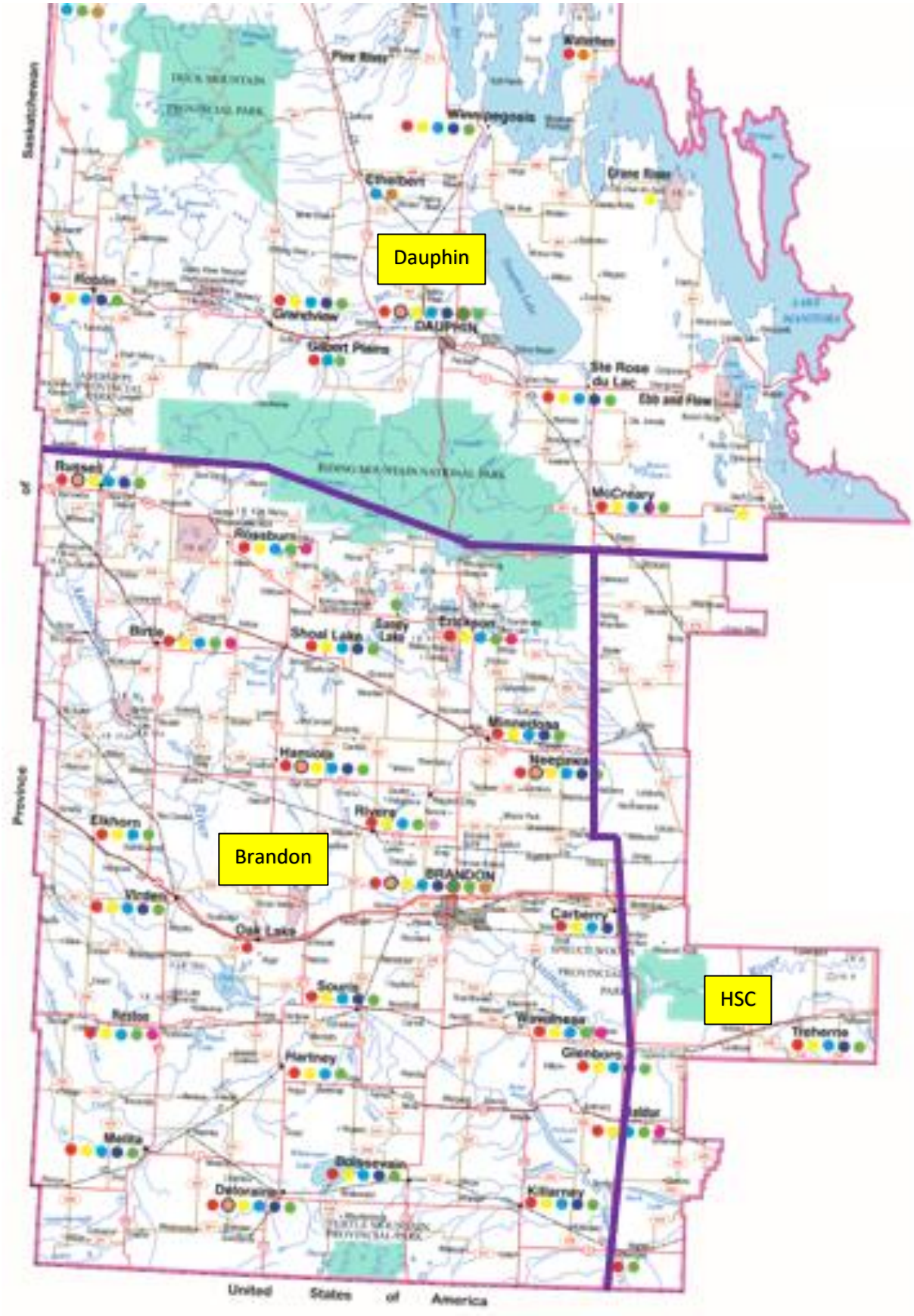
LINKS
• B01 - STANDARD DESTINATION • B02 - REDIRECTION ADVISORY • F01 - TRAUMA

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

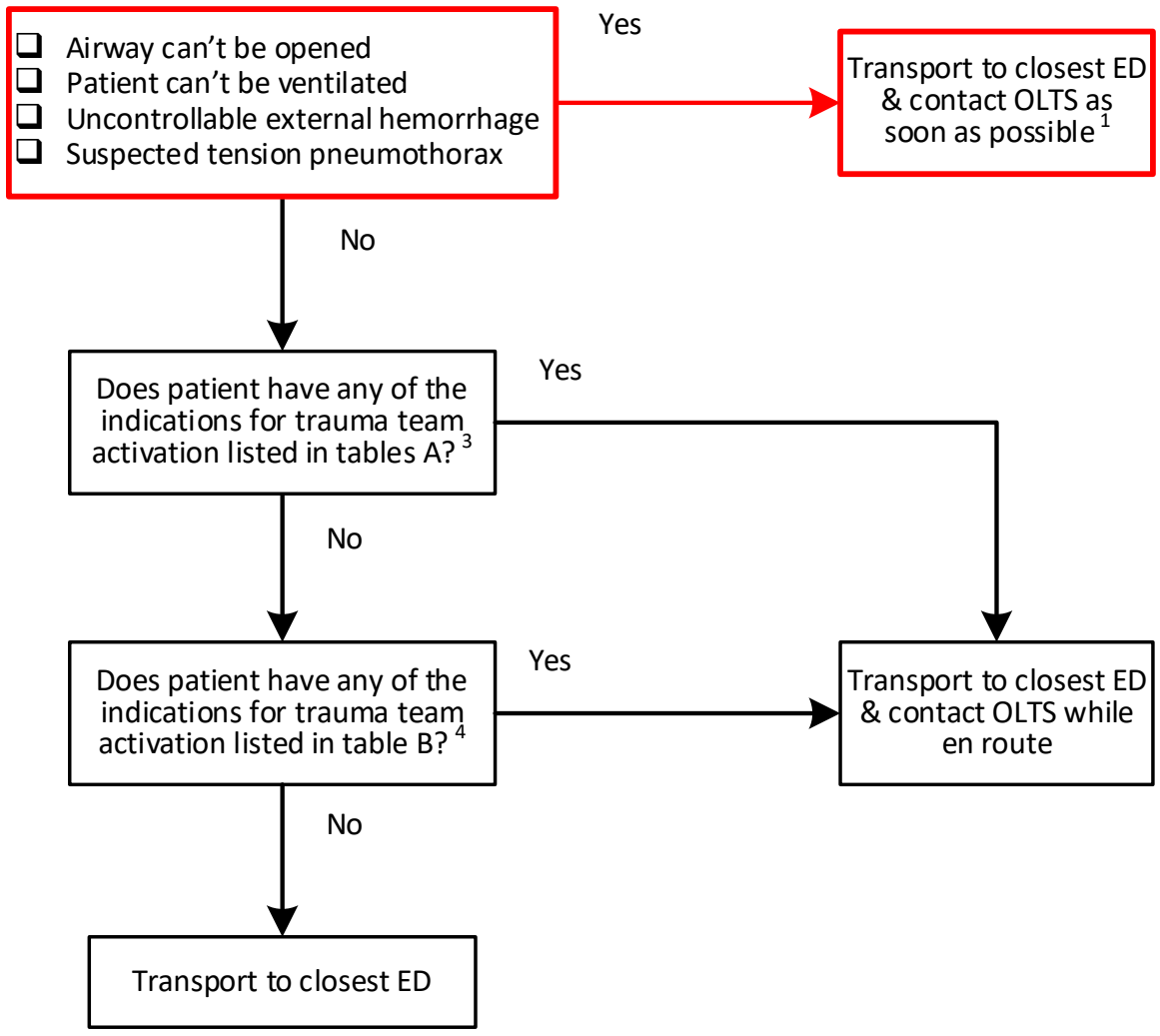
VERSION CHANGES (refer to X02 for change tracking)
• Clarification to call MTCC and request OLTS

APPENDIX A - INFORMATION REQUIRED FOR TRAUMA TEAM ACTIVATION
• Age • Gender • Mechanism of injury *(blunt versus penetrating)* • GCS • HR • BP • RR • SaO_2 *(indicate if supplemental O_2 required)* • Glucose *(if relevant)* • Scene location • Estimated transport time to trauma center or closest ED • Brief description of injuries • Brief summary of prehospital actions and interventions • Patient identifiers *(as many as possible of name / DOB / PHIN)*

APPENDIX B - CATCHMENT AREAS FOR TRAUMA TEAM ACTIVATION IN THE PRAIRIE MOUNTAIN HEALTH REGION



Shared health Soins communs Manitoba	B04.3 - TRAUMA DESTINATION FOR NRHA GEOGRAPHIC AREA	
	All ages	DESTINATION
Version date: 2024-04-10		Effective Date: 2024-05-15 (0700)



IDENTIFIER:	EMR: EMR	PCP: PCP & ICP	ICP: ICP only	None - All providers

TABLE A: INDICATORS FOR TRANSPORT TO TRAUMA CENTER [3]

ANATOMICAL

PENETRATING INJURIES:

- Head or neck
- Chest, shoulder, or axilla
- Abdomen or groin
- Extremities proximal to elbow or knee

BLUNT INJURIES:

- CHEST:
  - Flail chest
  - Sucking chest wound
  - Tension pneumothorax
- PELVIS / EXTREMITY:
  - Two or more long bone fractures proximal to elbow or knee (eg. humerus & femur)
  - Open fracture or open dislocation
  - Fracture or dislocation with no pulse in affected limb
  - Major amputation of extremity proximal to wrist or ankle
  - Crushed, de-gloved, mangled, or pulseless extremity
  - Major extremity hemorrhage (requiring tourniquet to control bleeding)
  - Open book pelvic fractures / injuries
- HEAD / SPINE:
  - Paraplegia or quadriplegia
  - Open or depressed skull fracture(s)
  - Focal neurological deficit with evidence of head trauma

MAJOR BURNS:

- Body surface area greater than 20% (any thickness)
- Critical location (face, neck, hands, feet, perineum)
- Potential airway involvement
- High voltage electrical burns

OTHER:

- Pregnancy greater than 20 weeks gestation with any apparent injury (excluding minor extremity injuries)

PHYSIOLOGICAL

UNSTABLE VITAL SIGNS:

- GCS less than or equal to 13 with evidence of head trauma
- SBP less than 90 mmHg (adult)
- Heart rate greater than 120 beats per minute (adults)
- RR less than 10 or greater than 29 breaths per minute (12 months or older)
- RR less than 20 breaths per minute in infants (up to 12 months)

TABLE B: MOI INDICATORS / SPECIAL CONSIDERATIONS FOR TRANSPORT TO TRAUMA CENTER [4]

FALLS:

- Adults - greater than 10 feet or one building story
- Children - greater than two times the height of the child

HIGH-ENERGY AUTO COLLISION:

- Intrusion into occupant site (passenger compartment) greater than 12 inches
- Intrusion into any site on the vehicle greater than 18 inches
- Ejection (partial or complete) from automobile
- Death in the same passenger compartment
- Vehicle telemetry data consistent with high risk of injury

AUTO VERSUS PEDESTRIAN / CYCLIST:

- Victim thrown or run-over
- Impact between vehicle and victim greater than 30 kilometers per hour
- Motorcycle crash greater than 30 kilometers per hour (without controlled slide)

SPECIAL CONSIDERATIONS:

- Patients on anticoagulants, or with bleeding disorders (e.g., Hemophilia, von Willebrand's disease)
- Pregnancy greater than 20 weeks gestation without apparent injury
- Significant injury in the same passenger compartment

INDICATIONS

- Major trauma where the incident has occurred within the geographic boundaries of the Northern Regional Health Authority (NRHA)

CONTRAINDICATIONS

- Not applicable

NOTES

1. Transport to the closest emergency department (ED) regardless of physician availability or redirection status. Paramedics can over-ride a redirection advisory for these critical conditions. Contact MTCC and request **on-line trauma support** (OLTS) as soon as possible.

   Survival is measured in minutes. If these cannot be resolved with the personnel, equipment, and expertise available on scene, emergency transport to a higher level of care or a better-resourced environment will be required. For most patients the benefits of additional "hands", a stable treatment platform, and reliable communications outweigh the disadvantage of no physician.

2. Contact MTCC and request OLTS for all trauma patients who meet any of the criteria in tables A or B regardless of your geographic location. Where indicated OLTS will conference in the transport physician (TP) for consideration of fixed-wing intercept or to expedite interfacility transport (IFT). OLTS will provide trauma team activation (TTA) to HSC emergency personnel as required.

   Appendix A contains the information required trauma activation and patient pre-registration.

3. Patients with any of the anatomical or physiological indicators listed in table A will require assessment by the trauma team at the Health Sciences Center (HSC). Initiate transport towards the closest ED and consult OLTS as soon as possible while during transport. You may be directed to an alternate destination for initial stabilization or intercept.
4. Patients with any of the mechanism of injury indicators or special consideration listed in table B may require assessment by the HSC trauma team. OLTS may direct you to an alternate destination for an initial medical assessment.

LINKS
• B01 - STANDARD DESTINATION • B02 - REDIRECTION ADVISORY • F01 - TRAUMA

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X02 for change tracking)
• Clarification to call MTCC and request OLTS

APPENDIX A - INFORMATION REQUIRED FOR TRAUMA TEAM ACTIVATION

- Age
- Gender
- Mechanism of injury *(blunt versus penetrating)*
- GCS
- HR
- BP
- RR
- SaO_2 *(indicate if supplemental O_2 required)*
- Glucose *(if relevant)*
- Scene location
- Estimated transport time to trauma center or closest ED
- Brief description of injuries
- Brief summary of prehospital actions and interventions
- Patient identifiers *(as many as possible of name / DOB / PHIN)*

Shared health Soins communs Manitoba	B05 - DIRECT TRANSPORT TO PALLIATIVE CARE UNIT	
	All ages	DESTINATION
Version date: 2023-10-20		Effective Date: 2024-02-13 (0700)

INDICATIONS

- Primary (911) response where all of the following conditions are met:
  - The patient is registered with any Regional palliative care program; and
  - The patient has an admission to a palliative care unit (PCU) or other health care facility arranged by a member of the palliative care program or a physician; and
  - The destination is within 60 minutes of the patient's point of origin. [3]

CONTRAINDICATIONS

- Interfacility transports (IFT) of palliative care patients will be managed as per IFT policies and practices.

PREAMBLE

Many palliative care patients prefer to remain in their own home and/or with family as long as possible. Near end of life some will have *goals of care* that include transfer to a bed in a dedicated palliative care unit or a local acute care facility.

Plans for admission may be *coordinated* by a member of the palliative care team. Admission may actually be reserved, or "booked" by the palliative care physician or a non-palliative care physician with admitting privileges at that facility. Often there is collaboration between the patient's personal physician and the palliative care team.

NOTES

1. When advised that a palliative care patient has an admission booked as above, paramedics will transport the patient to that facility, unit, ward, or bed as directed.

   In some smaller facilities, processing of admissions is done in the emergency department (ED) and paramedics may be advised to first present there for documentation and assessment by the on-duty ED physician.

2. If the patient or caregiver is the initial source of information that an admission has been arranged**,** paramedics should discretely and tactfully attempt to confirm before bypassing a closer facility. The patient or caregiver will usually have contact information for their palliative care coordinator, lead, or physician.

3. If the transport duration to the destination will exceed 60 minutes, paramedics will transport to the closest ED where an intercept, or secondary IFT may be arranged. If the transport duration to the closest ED will exceed 60 minutes, paramedics will transport to the closer of the destination or the ED.

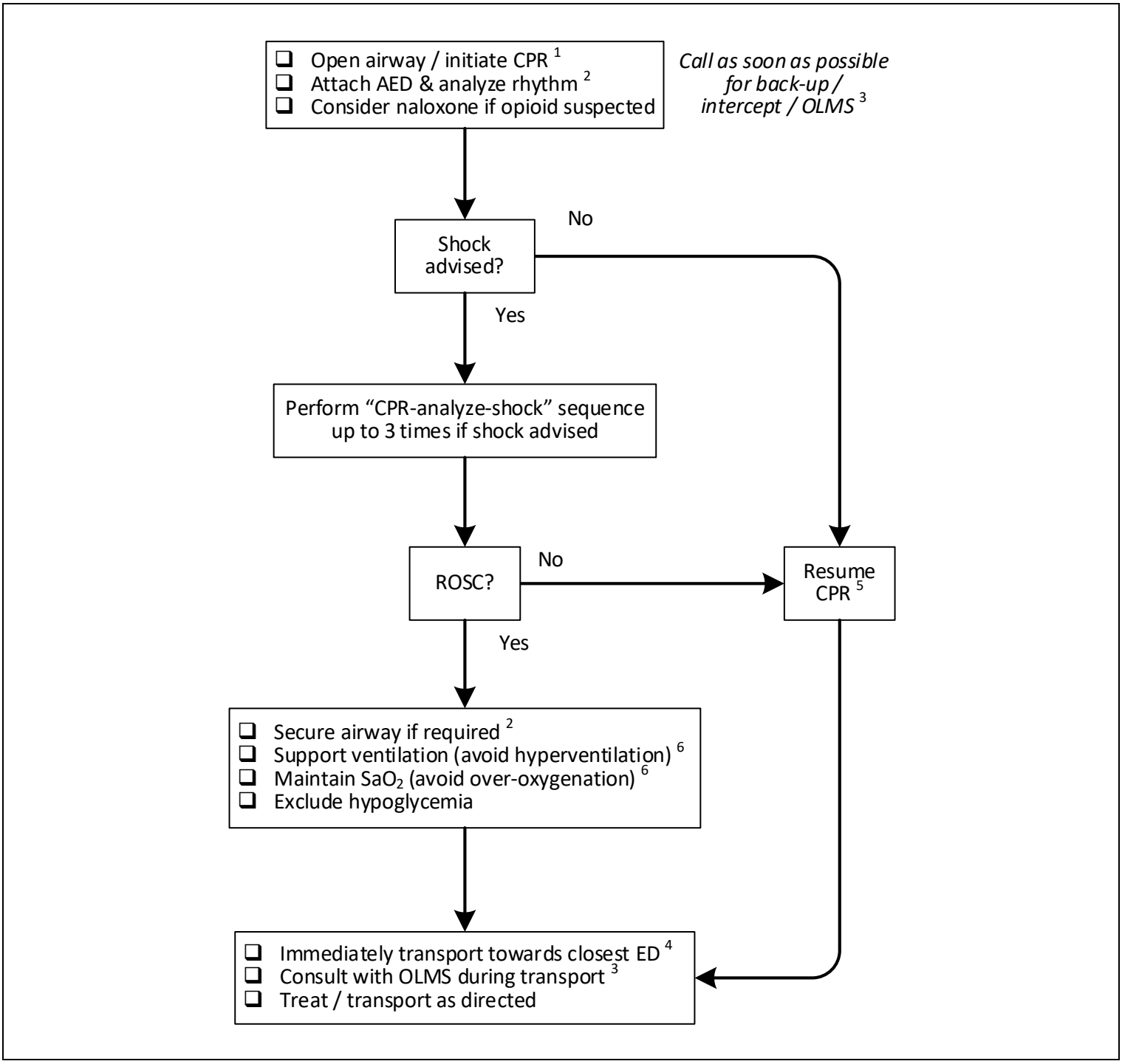
4. Paramedics will over-ride any redirection advisory (diversion) at the destination hospital when directed to that facility.
5. Paramedics may consult on-line medical support (OLMS) at any time for assistance with destination decision making and orders to accommodate unique patient needs during transport, such as analgesic dosing in excess of standing orders (M-documents).

LINKS
B01 - STANDARD DESTINATION B02 - REDIRECTION ADVISORY B03 - DESTINATION WHEN THE CLOSEST ED IS IN WINNIPEG

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X02 for change tracking)
• Retitled • OLMS physician changed to OLMS

Shared health Soins communs Manitoba	C01 - BASIC CARDIAC ARREST (EMR)	
	All ages	RESUSCITATION
Version date: 2023-11-12		Effective Date: 2024-02-13 (0700)



INDICATIONS

- Cardiac arrest due to nontraumatic causes (for traumatic cardiac arrest refer to F02.1)

CONTRAINDICATIONS

- Health care directive prohibiting resuscitation from cardiac arrest
- Obvious signs of death [7]

NOTES

1. During the COVID pandemic extended personal protective equipment (PPE) is required for all resuscitations. Airway manipulation during resuscitation is an aerosol generation medical procedure (AGMP). Compressions and defibrillation are not.
   - If the patient is known or suspected to be COVID positive, do not perform positive pressure ventilation (PPV). Provide passive oxygenation only with the two-hand or CPAP mask seal (figure 1).
   - If the patient's COVID status is negative and COVID is not reasonably suspected, PPV can be initially provided without a sealed airway. The airway should be sealed as soon as possible.
2. For patients less than 8 years of age or 25 kilograms weight use pediatric pads. If pediatric pads are not available, use adult pads but ensure separation by at least 2.5 cm (consider antero-posterior placement).

   When using an AED in a patient with an implanted cardioverter-defibrillator (ICD) or pacemaker, place the electrodes at least 8 centimeters (3 inches) away from the pulse generator.
3. Contact on-line medical support (OLMS) as early as possible without delaying resuscitative measures. Consult OLMS before discontinuing resuscitation.

   If high-quality CPR and three shocks do not lead to a return of spontaneous circulation (ROSC), it is unlikely that further care on-scene will be effective without *immediate* access to advanced interventions. However, emergency transport without hope of survival exposes paramedics and the public to unnecessary risk.

   The decision to transport depends on the potential cause of the arrest, whether it was witnessed or bystander CPR was performed, the downtime prior to EMS arrival, the ability to sustain high-quality CPR during transport, and the transport duration to the next level of care.

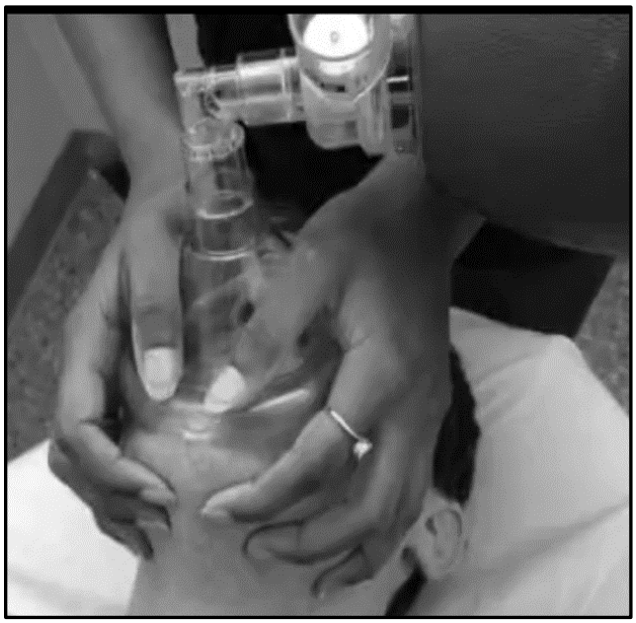
   Clinical factors such as younger age, hypothermia, or persisting electrical activity indicate an increased chance of survival, and *may* support extended resuscitation efforts.

   In certain non-clinical circumstances and even with little probability of survival, transporting to a health care facility and deferring the decision about discontinuation to a health care provider with additional training and experience may be in the best interest of the patient's family and providers (e.g., pediatric victim, family distress).
4. Transport time to the closest emergency department (ED) must be based on safe transport speed and should consider time for egress and loading.
5. Always maintain personal safety when performing CPR during transport. Continue until fatigue ensues or if safety concerns arise. Do not interrupt to reassess unless signs of return of spontaneous circulation (ROSC) occur (e.g. spontaneous movement).

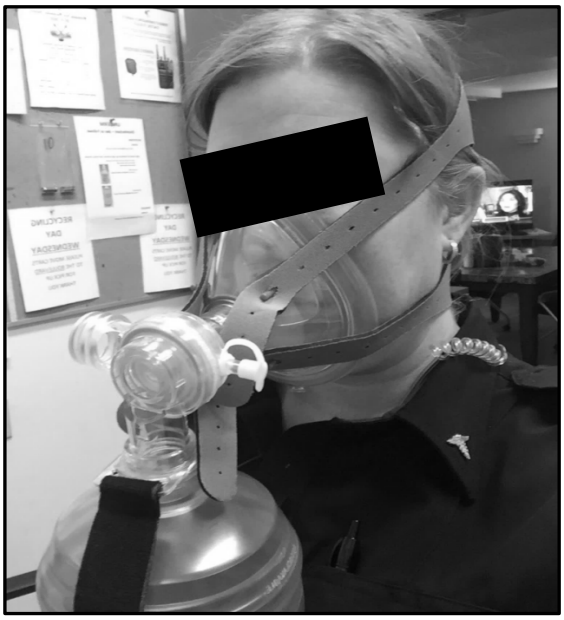
6. Hyperventilation may reduce blood flow to the brain. Provide supplemental oxygen to achieve an oxyhemoglobin saturation (SaO_2) of 92% to 98% in adults, and 94% to 99% in children under age 10 years.
7. Prior death can be reliably concluded by finding evidence of a significant time lapse from the cessation of circulation, or the recognition of injuries incompatible with survival. Evidence of significant time lapse includes dependent lividity, rigor mortis, generalized tissue decomposition, putrefaction, and torso freezing (such that the chest cannot be compressed). Injuries incompatible with life include decapitation, incineration, transection of the thorax or abdomen, substantial destruction of vital organs (heart, lungs, brain), or separation of vital organs from the body.

FIGURE 1: PASSIVE OXYGENATION WITH BVM & MOUTH / NOSE SEALED

TWO-HAND MASK SEAL



CPAP MASK SEAL



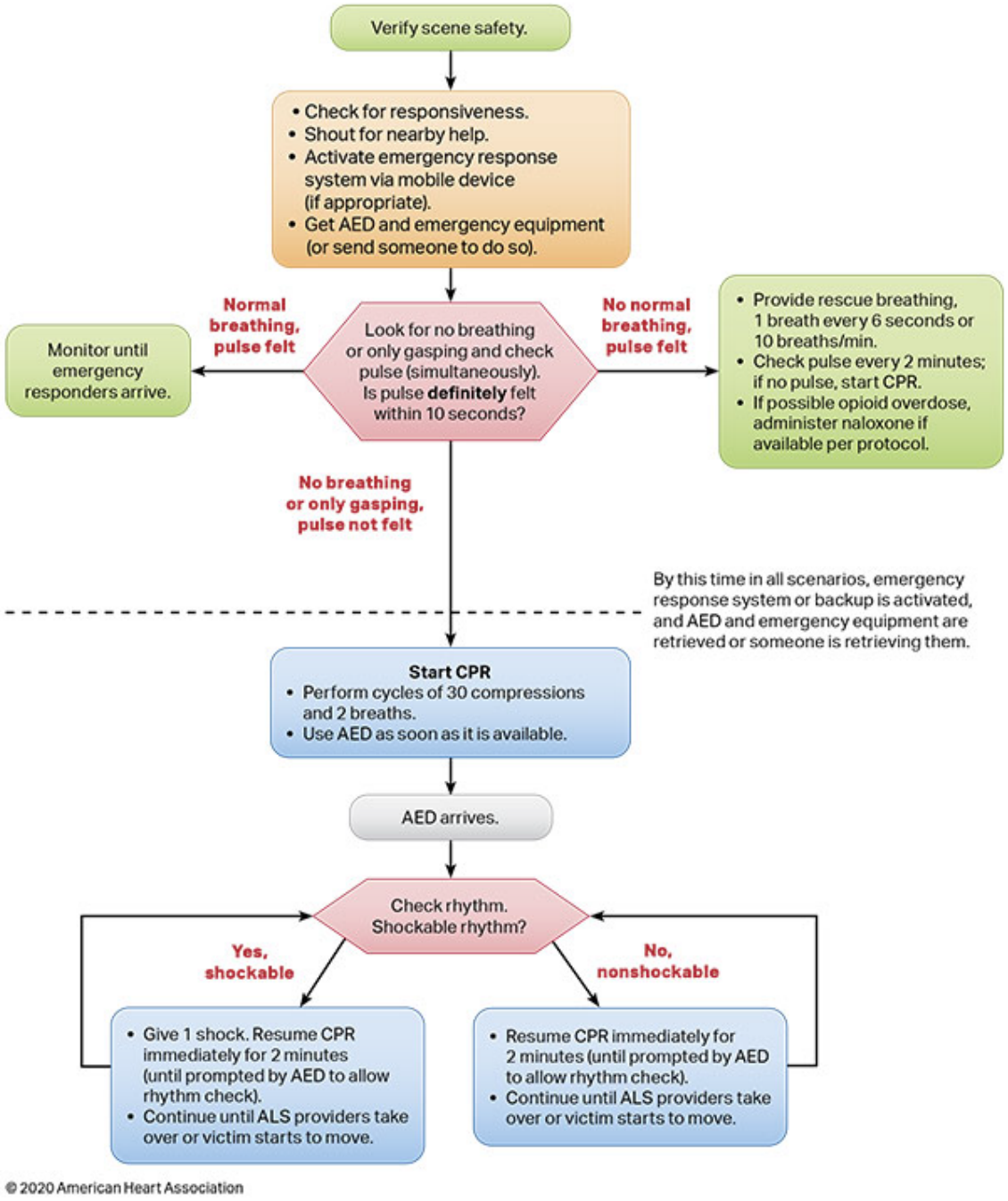
LINKS

- F02.1 - BASIC TRAUMA ARREST (EMR)
- M11 - NALOXONE

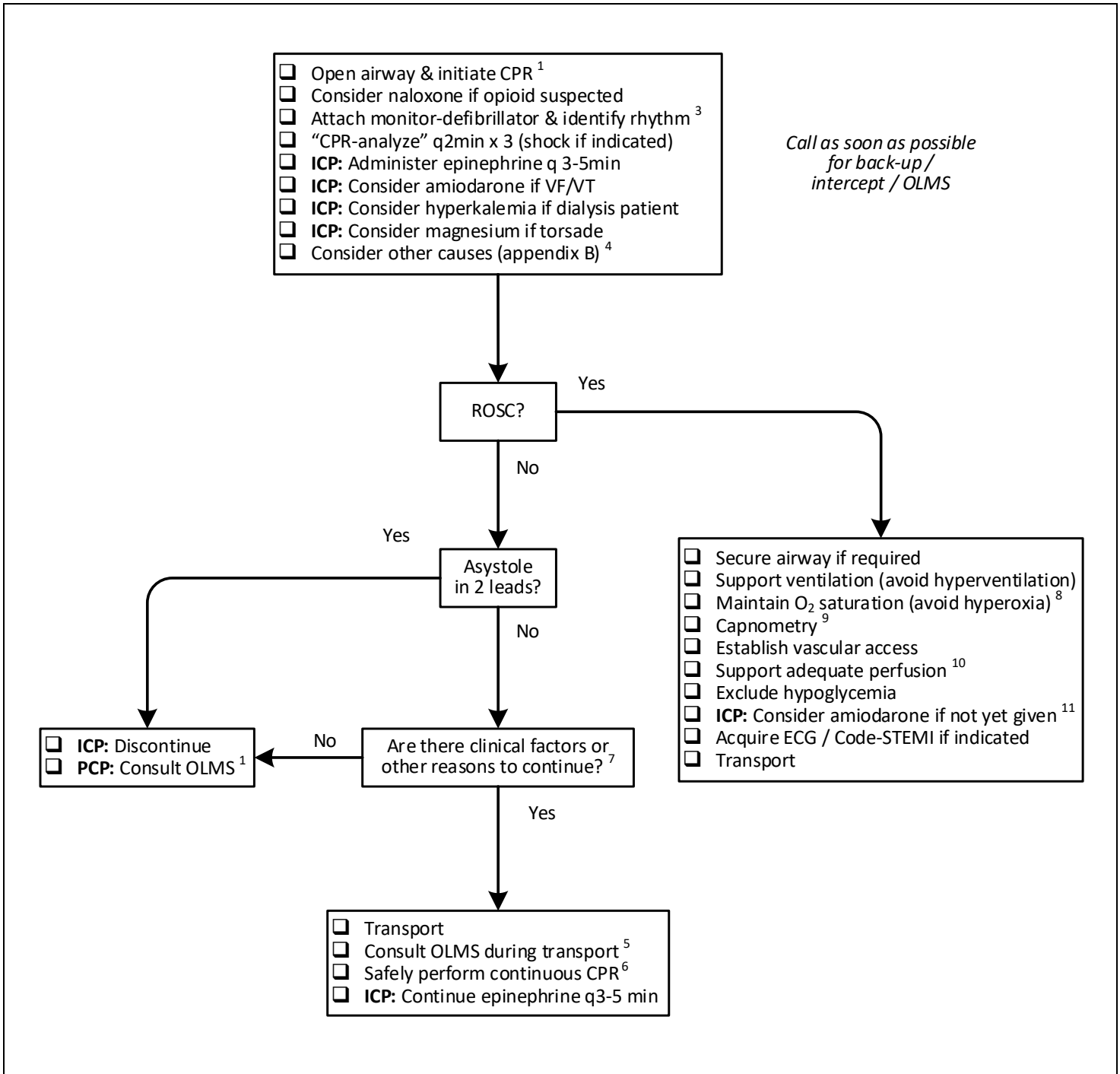
APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Retitled • EMR only (PCP will now use C02) • Revised & simplified flow chart incorporates previous ROSC & COVID algorithms • Revised & simplified notes • Emphasis on consulting OLMS early for transport or discontinuation direction

APPENDIX A: HEART & STROKE ADULT CARDIAC ARREST ALGORITHM (BLS)



Shared health Soins communs Manitoba	C02 - ADVANCED CARDIAC ARREST (PCP & ABOVE)	
	All ages	RESUSCITATION
Version date: 2024-01-22		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	PCP: PCP & ICP	ICP: ICP only	None - all providers

INDICATIONS
• Cardiac arrest due to nontraumatic causes (for traumatic cardiac arrest refer to F02.2)

CONTRAINDICATIONS
• Health care directive prohibiting resuscitation from cardiac arrest • Obvious signs of death [12]

NOTES

1. During the COVID pandemic extended personal protective equipment (PPE) is required for all resuscitations. Airway manipulation during resuscitation is an aerosol generation medical procedure (AGMP). Compressions and defibrillation are not.
   - If the patient is known or suspected to be COVID positive, do not perform positive pressure ventilation (PPV). Provide passive oxygenation only with the two-hand or CPAP mask seal (figure 1).
   - If the patient's known to be COVID negative (or COVID is not reasonably suspected) PPV can be initially provided without a sealed airway. The airway should be sealed as soon as possible.
2. If the patient's age is unknown, use visible signs of puberty as the differentiating feature for adolescent and child dosing. For patients less than 8 years of age or 25 kilograms weight use pediatric pads. If pediatric pads are not available, use adult pads but ensure separation by at least 2.5 cm (consider antero-posterior placement).
3. When defibrillating a patient with an implanted cardioverter-defibrillator (ICD) or pacemaker, place the electrodes at least 8 centimeters (3 inches) away from the pulse generator.
4. Reversible causes of cardiac arrest (appendix B) will often present initially with pulseless electrical activity (PEA) or a shockable rhythm, but will rapidly progress to asystole if uncorrected. Prompt identification and correction of the "H's & T's" (while maintaining high-quality CPR) is the priority.

   For certain causes, such as tension pneumothorax, treatment may be available by a provider with the appropriate practice scope at an emergency department (ED) and scene time should be minimized.

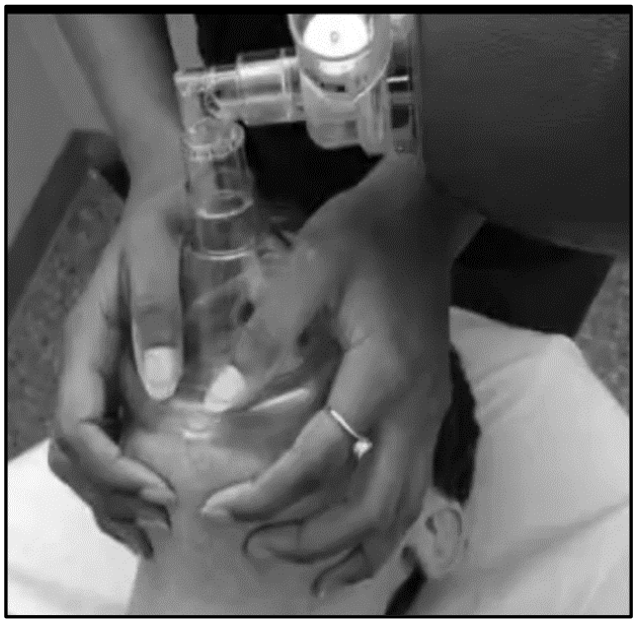
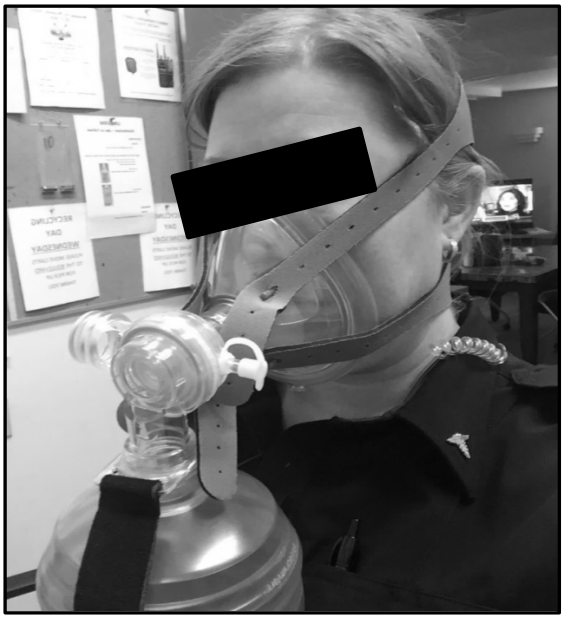
   Ventricular tachycardia (VT) or ventricular fibrillation (VF), due to a reversible cause such as hyperkalemia or a tricyclic antidepressant (TCA) overdose may not respond to defibrillation until the underlying cause is addressed.
5. The decision to transport without return of spontaneous circulation (ROSC) can be complex and depends on the cause of the arrest, whether it was witnessed or bystander CPR was performed, the downtime prior to EMS arrival, the ability to sustain high-quality CPR during transport, and the transport duration to the next level of care. However, emergency transport without hope of survival exposes paramedics and the public to unnecessary risk. Consider early contact to on-line medical support (OLMS).

   Clinical factors such as younger age, hypothermia, persisting electrical activity, or persistent EtCO2 above 10 mmHg indicate an increased chance of survival, and may support extended efforts.

   In certain non-clinical circumstances and even with little probability of survival, transporting to a health care facility and deferring the decision about discontinuation to a health care provider with additional training and experience may be in the best interest of the patient's family and providers (e.g. pediatric victim, family distress).

6. Always maintain personal safety when performing CPR during transport. Continue until fatigue ensues or if safety concerns arise. Do not interrupt to reassess unless signs of return of spontaneous circulation (ROSC) occur (e.g. spontaneous movement).
7. Transport time to the closest emergency department (ED) must be based on safe transport speed and should consider time for egress and loading.
8. Provide supplemental oxygen to achieve an oxyhemoglobin saturation (SaO_2) of 92% to 98% in adults, and 94% to 99% in children under age 10 years.
9. Over-ventilation may compromise cerebral blood flow. Target an end-tidal carbon dioxide ($EtCO_2$) level of 35 to 45 mmHg.
10. In adults aim for a mean arterial pressure (MAP) of greater than 65 mmHg (or a systolic blood pressure of approximately 90 mmHg).
11. When administering amiodarone to a patient with ROSC, note that the dose is lower and the administration rate is slower than when administering during cardiac arrest (refer to M14).
12. Prior death can be reliably concluded by finding evidence of a significant time lapse from the cessation of circulation, or the recognition of injuries incompatible with survival. Evidence of significant time lapse includes dependent lividity, rigor mortis, generalized tissue decomposition, putrefaction, and torso freezing (such that the chest cannot be compressed). Injuries incompatible with life include decapitation, incineration, transection of the thorax or abdomen, substantial destruction of vital organs (heart, lungs, brain), or separation of vital organs from the body.

FIGURE 1: PASSIVE OXYGENATION WITH BVM & MOUTH / NOSE SEALED

TWO-HAND MASK SEAL	CPAP MASK SEAL
	

LINKS	
• C07.1 - HYPOVOLEMIA & SEPSIS • E04 - ACUTE CORONARY SYNDROME & STEMI • E11 - HYPERKALEMIA • F02.2 - ADVANCED TRAUMA ARREST • M05.2 - EPINEPHRINE FOR CARDIAC ARREST • M11 - NALOXONE	• M14 - AMIODARONE • M15 - SALBUTAMOL • M18 - SODIUM BICARBONATE • M24 - MAGNESIUM SULFATE • M26 - CALCIUM CHLORIDE

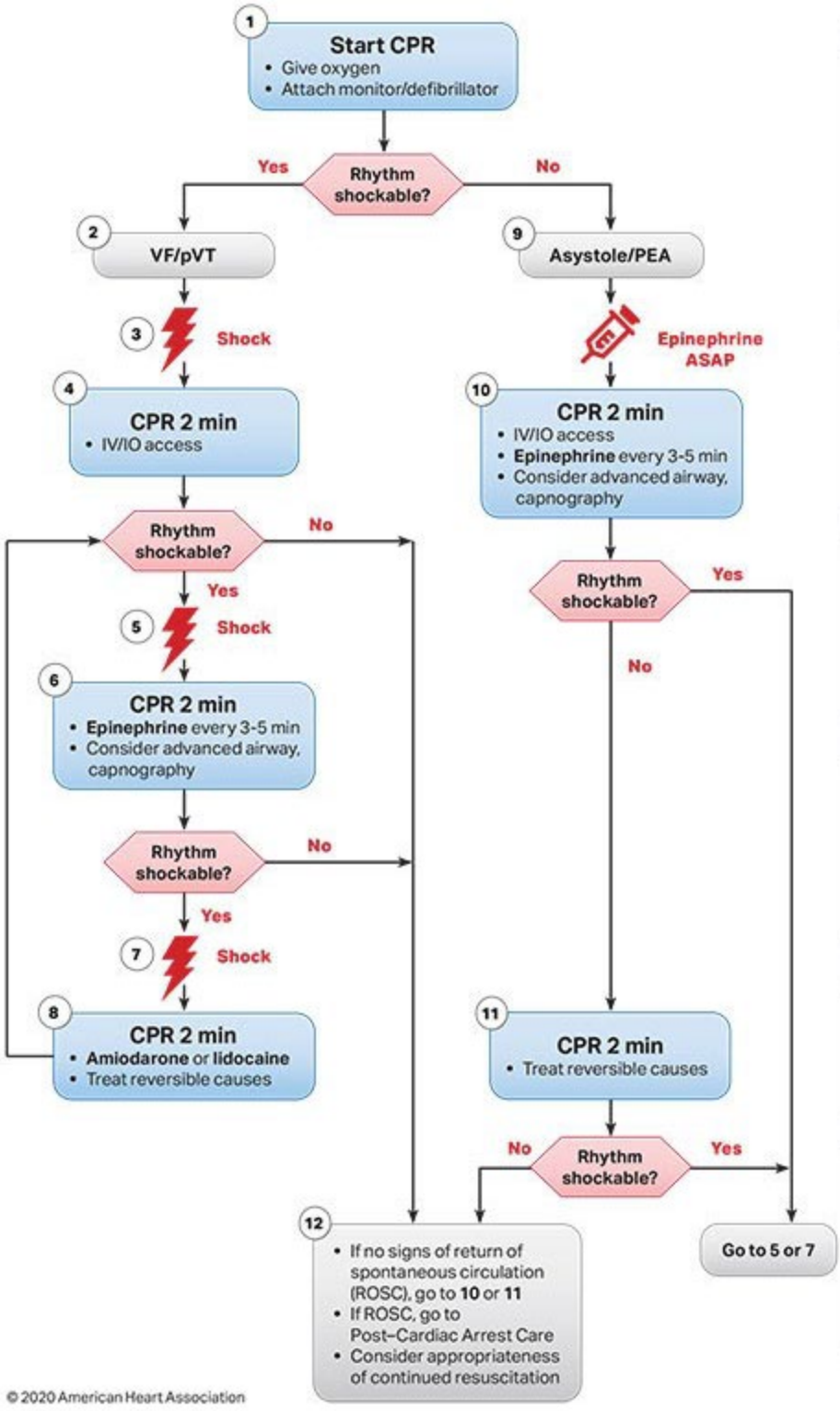
APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Renamed • Simplified algorithms & revised notes • Trauma arrest removed to new care map F02.2 • ROSC management incorporated into each algorithm • PCP must contact OLMS to discontinue • Simplified directions for airway management during COVID • Medication quick reference guide moved to appendix A • “H’s & T’s” moved to appendix B & include care map identifiers where available • Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: CARDIAC ARREST QRG *This guide is for dosing only. Refer to the medication documents for additional information required for safe administration.*	
TEN YEARS & OLDER	**LESS THAN TEN YEARS** [2]
DEFIBRILLATION	
• Initial shock @ 120 to 200 J • Use maximum energy if uncertain • Increase the dose with each additional shock	• First shock @ 2 J/kg • Second shock @ 4 J/kg • Administer each additional shock @ 4 to 10 J/kg
EPINEPHRINE (M05.2)	
• 1 mg • Repeat every 3 to 5 minutes as required (q3-5min)	• 0.01 mg/kg (single max dose = 0.5 mg) • Repeat every 3 to 5 minutes as required (q3-5min)
AMIODARONE (M14) [11]	
• 300 mg • Repeat 150 mg once in 5 minutes	• 5 mg/kg (single max dose = 150 mg) • Repeat every 5 minutes up to 2 more times as required

APPENDIX B: POTENTIAL CAUSES OF CARDIAC ARREST *("H's & T's")*	
CAUSE	**MANAGEMENT**
Hypovolemia / hemorrhage	C07.1 - HYPOVOLEMIC & SEPTIC SHOCK
Hypoxia	Ensure patent airway & optimize oxygenation
Acidosis	Optimize oxygenation and high-quality compressions
Hyperkalemia	E11 - HYPERKALEMIA
Hypothermia	Prolonged efforts *may* be justified until warmed [10]
Tension pneumothorax	Decompression [4]
Cardiac tamponade	Possible *transient* benefit from fluid bolus
Overdose	M11 - NALXONE, M18 - SODIUM BICARBONATE
Myocardial infarction	E04 - ACUTE CORONARY SYNDROME & STEMI
Pulmonary embolism	Possible *transient* benefit from fluid bolus
Trauma	F02.2 - ADVANCED TRAUMA ARREST

APPENDIX C: HEART & STROKE ADULT CARDIAC ARREST ALGORITHM (ACLS)



CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If P_{ETCO_2} is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

- **Biphasic**: Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic**: 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
  or
  Lidocaine IV/IO dose: First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

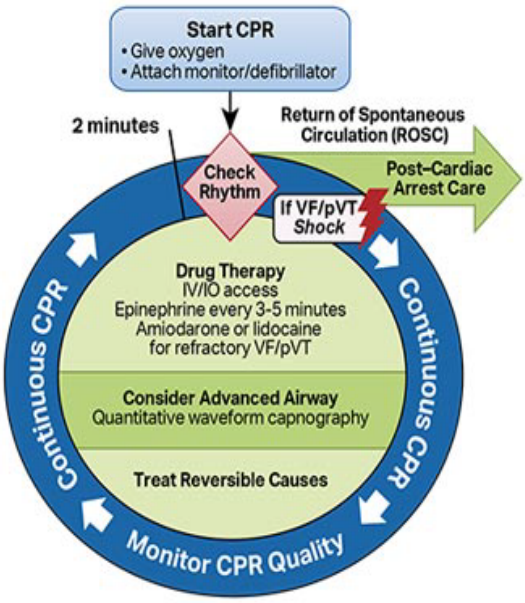
Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in P_{ETCO_2} (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

APPENDIX D: HEART & STROKE ADULT CARDIAC ARREST CIRCULAR ALGORITHM (ACLS)



CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If P_{ETCO_2} is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
  or
- **Lidocaine IV/IO dose:** First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

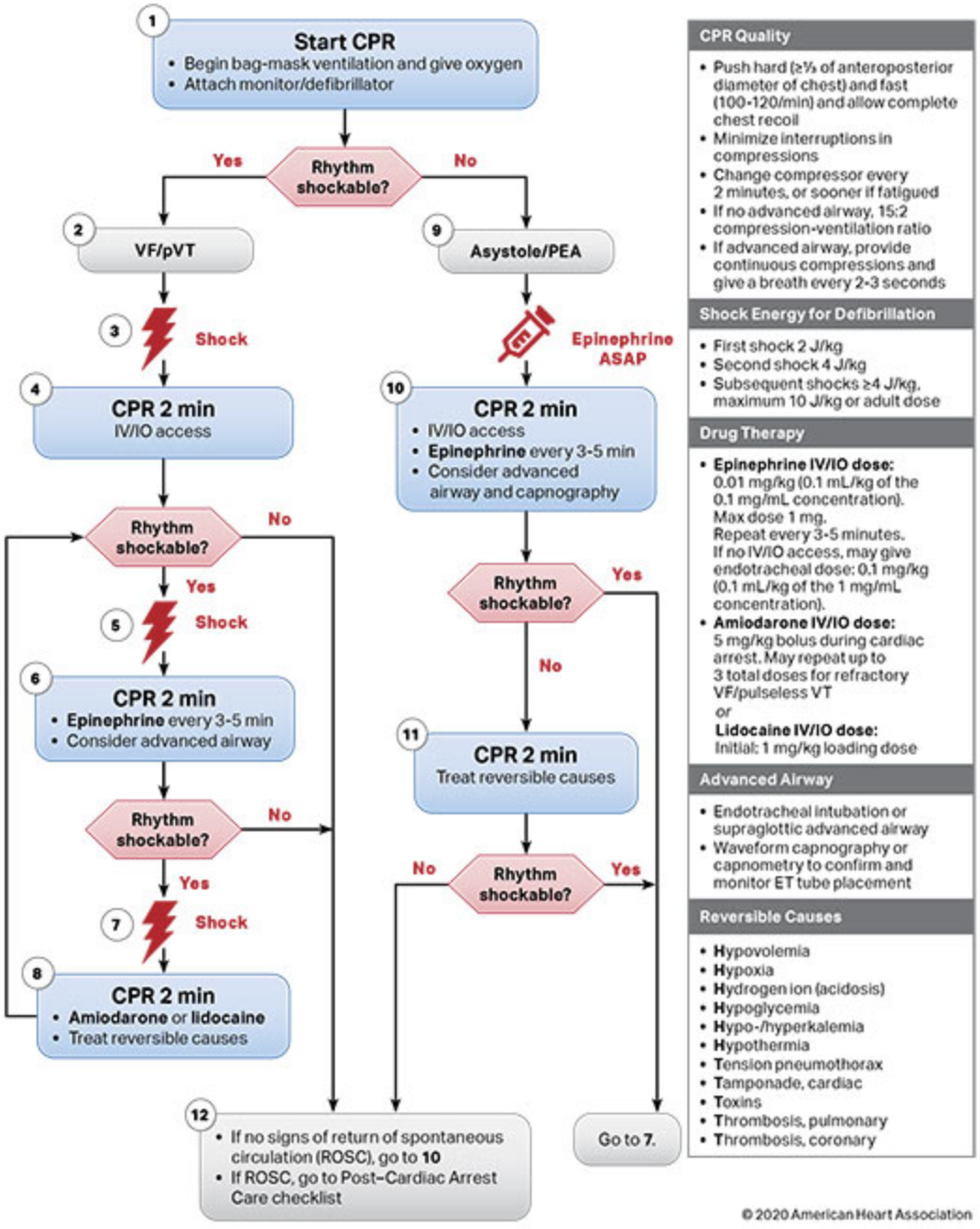
Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in P_{ETCO_2} (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

APPENDIX E: HEART & STROKE PEDIATRIC CARDIAC ARREST ALGORITHM (PALS)



Shared health Soins communs Manitoba	C04 – EZ IO® INSERTION	
	All ages	RESUSCITATION
Version date: 2023-08-14		Effective date: 2024-02-13 (0700 hours)

INDICATIONS
• **ICP only:** Critically ill or injured patient in whom vascular access cannot be obtained, or is anticipated as unlikely to be obtained, within 60 seconds or with two attempts

CONTRAINDICATIONS
• Bone fracture near or proximal to site in consideration • Intraosseous (IO) placement at same site within 72 hours • Burn (relative) or overlying infection at site in consideration • Landmarks cannot be adequately localized • Osteogenesis Imperfecta

QRG: INSERTION SITES & NEEDLE LENGTH		
72 HOURS UP TO 10 YEARS: Proximal humerus; proximal tibia; distal tibia; distal femur	**Patient weight (kg)**	**Needle length (mm)**
	3 to 39	15 (pink hub)
10 YEARS & OLDER: Proximal humerus; proximal tibia; distal tibia	> 40	25 (blue hub)
	> 40 & extra tissue depth	45 (yellow hub)

NOTES

1. Except for medications that are required to save life, limb, or vital function, intraosseous (IO) access should not be established solely to administer medication.
2. Any medication in the ERS formulary that can be administered by the intravenous (IV) route can be given through an IO device.
3. Select the best insertion site and appropriate needle length based on the patient's weight and anatomy (QRG).
4. Position and stabilize the limb.
5. Using strict sterile technique to prepare the insertion site.
6. Pierce the skin and insert the needle into tissue. Confirm that the 5 mm mark is visible above the skin. If the mark is not visible, use the next larger needle length.
7. Using minimal pressure, drill the needle into bone.
8. Once inserted, stabilize the hub, and remove the driver.
9. Aspirate using a sterile syringe. Return of bone marrow confirms correct intramedullary needle tip placement, while the absence of marrow does not rule out correct placement.
10. Flush with the age-appropriate volume of sterile saline and watch for evidence of fluid extravasation.
    - Adults & adolescents - 5 to 10 ml
    - Infants & children - 2 to 5 ml
11. If fluid extravasation occurs, do not use this site but leave the device secured in place.
12. Apply the IO stabilizer and attached a primed extension set. Immobilize the limb for humerus and femur insertions.
13. Assess the site every 15 minutes to ensure the device remains secure and there are no signs of extravasation.
14. If the fluid flow subsequently slows or stops, repeat irrigation with sterile saline as noted in #10 above. If the device does not irrigate properly or there appears to be fluid extravasation, discontinue use but leave the device secured in place.
15. Serious injury, including compartment syndrome, may occur due to extravasation of fluid or medications into the surrounding tissues because of incorrect placement (either too deep or not deep enough). Secondary extravasation may result from increased intramedullary pressure from a high rate of infusion or due to a large infused volume.
16. **INTRAOSSEOUS LIDOCAINE:** In a conscious patient, consider the instillation of preservative-free 10 mg/ml (1%) or 20 mg/ml (2%) lidocaine to provide analgesia from the discomfort of infusion.
    - Infuse lidocaine into the device over 60 seconds
    - Allow to dwell for 120 seconds
    - Flush with 2.5 to 10 ml of sterile saline [10]
    - If pain relief is not adequate within 5 minutes, repeat with half dose
    - Repeat every 45 minutes as required

    10 YEARS & OLDER: 50 mg

    UP TO 10 YEARS: 0.1 mg/kg (single maximum dose = 50 mg)

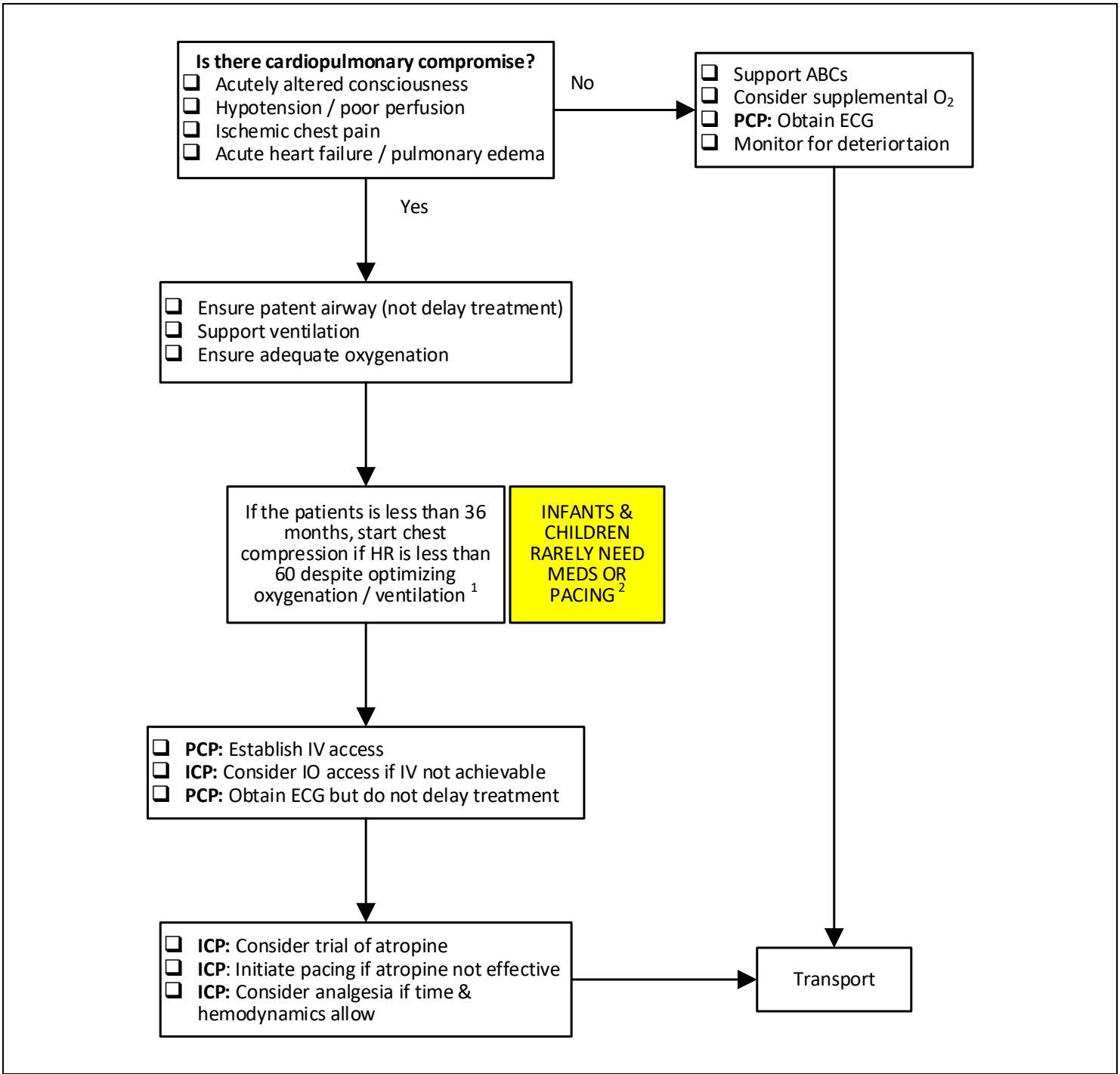
Cumulative maximum dose: 3 mg/kg per hour

LINKS
M25 - INTRAOSSEOUS LIDOCAINE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Work scope indicator moved out of header

Shared health Soins communs Manitoba	C05 - UNSTABLE BRADYCARDIA	
	All ages	RESUSCITATION
Version date: 2023-07-16		Effective date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• A palpable pulse with a sustained heart rate (HR) less than the age-appropriate physiological minimum (appendix A) and cardiopulmonary compromise known or suspected to be due to the bradycardia.

CONTRAINDICATIONS
• Bradycardia without a palpable pulse indicates will be treated as per the appropriate resuscitation care map (C01 / C02).

NOTES

1. For patients under 3 years of age, a pulse of 60 beats per minute (bpm) is not sufficient to maintain cerebral perfusion. **If the HR is less than 60 beats per minute (bpm) initiate chest compressions (even if you can feel a pulse). while optimizing oxygenation and ventilation** Continue compressions until the HR is consistently above 60 bpm.

   For children over 3 years of age, a pulse HR of 60 *may* be sufficient to maintain cerebral perfusion. Assess the adequacy of cerebral perfusion by the patient's level of consciousness. If patient is alert, cerebral perfusion is likely adequate and chest compressions should not be necessary. Above 6 years of age, chest compressions with a palpable pulse are not indicated.
2. In infants and children, bradycardia is *most commonly* due to hypoxemia. Prompt attention to oxygenation and ventilation is vital.
3. Do not pace a patient if the patient has a functioning left ventricular assist device (LVAD).
4. When performing TCP for a patient with an implanted cardioverter defibrillator (ICD) or pacemaker, place the pacing electrodes at least 8 centimeters (3 inches) away from the pulse generator, and inactivate the ICD with a donut magnet.
5. The initial pacer rate should be set at 60 beats per minute (bpm) in adults and adolescents and 80 bpm in children. Based on the patient's response, this can then be adjusted up or down. Once ventricular capture is achieved, the pacer output should be set about ten percent higher.

LINKS

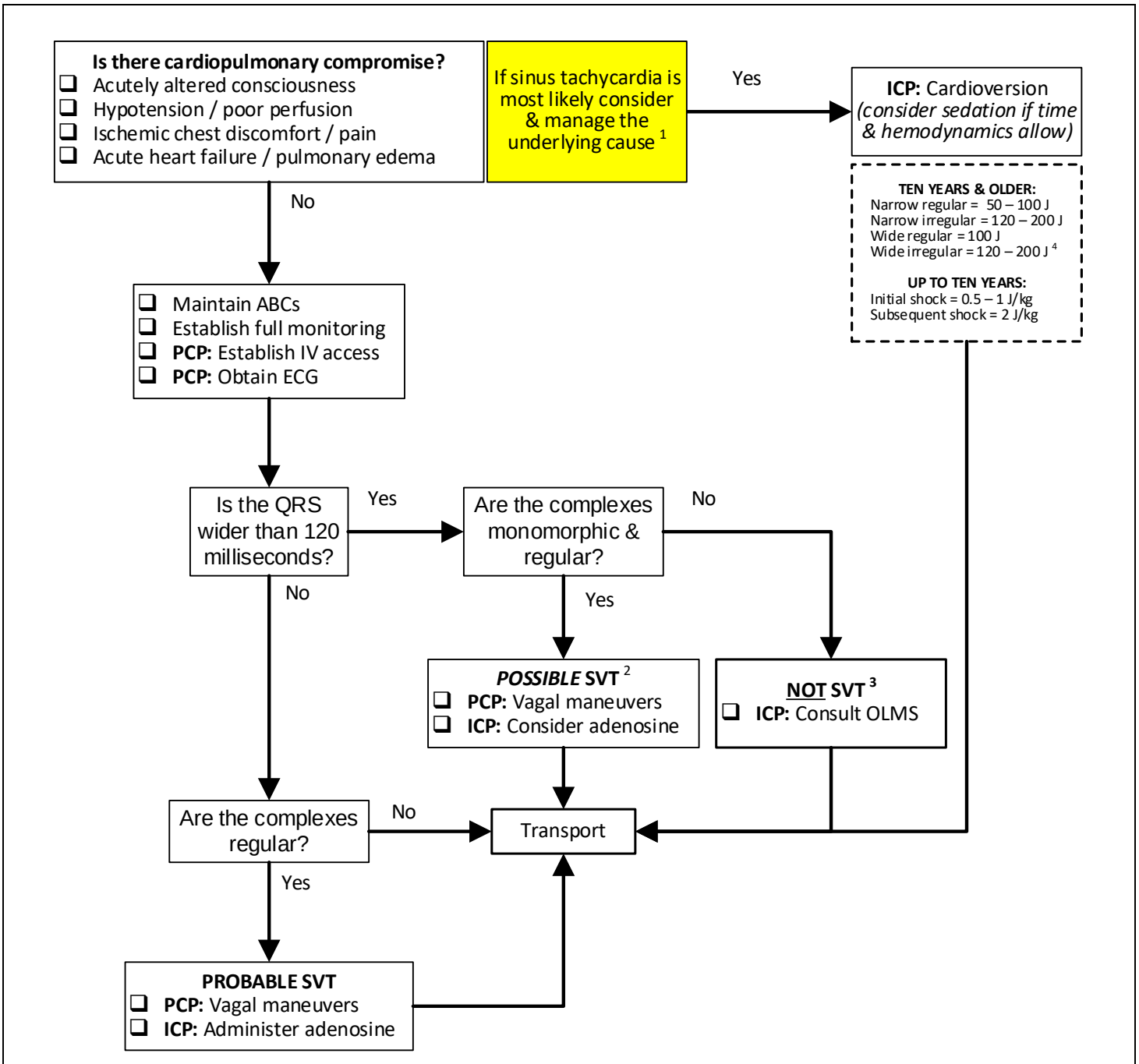
C01 - BASIC CARDIAC ARREST
C02 - ADVANCED CARDIAC ARREST
M39 - ATROPINE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header • Table A moved to appendix

APPENDIX A: MINIMUM HEART RATE BY AGE (APPROXIMATE)			
AGE IN YEARS	**HR (BPM)**	**AGE IN MONTHS**	**HR (BPM)**
> 18	60	24 - 36	80 - 90
15 - 18	60	18 - 24	90 - 95
12 - 15	60	12 - 18	95 - 100
8 - 12	60	9 - 12	100 - 105
6 - 8	60 - 65	6 – 9	105 – 110
4 - 6	65 - 75	3 - 6	110 – 120
3 - 4	75 - 80	0 - 3	120 - 125

Shared health Soins communs Manitoba	C06 - UNSTABLE TACHYCARDIA	
	All ages	RESUSCITATION
Version date: 2023-07-09		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS

- A palpable pulse with a sustained heart rate (HR) greater than the age-appropriate physiological maximum (appendix A) and cardiopulmonary compromise known or suspected to be due to the tachycardia.

CONTRAINDICATIONS

- Tachycardia without a palpable pulse indicates will be treated as per the appropriate resuscitation care map (C01 / C02).

NOTES

1. In an infant or child, that rhythm with a heart rate (HR) of less than 200 beats per minute (bpm) is consistent with sinus tachycardia (causes include hypovolemia, sepsis, or hypoxemia). A HR above 220 bpm suggests **paroxysmal supraventricular tachycardia** (PSVT *or* SVT), especially if accompanied by signs of heart failure.
2. SVT can have wide QRS complexes when abnormal conduction is present. However, the complexes should all look similar (monomorphic) and be very regular. A history of prior SVT or known aberrant conduction is an important clue.
3. A wide QRS complex that is not monomorphic and not regular is much less consistent with SVT and highly suspicious for ventricular tachycardia (VT), or atrial fibrillation (AF) with abnormal conduction. In this case, adenosine is unlikely to work and could precipitate ventricular fibrillation (VF) if the rhythm is aberrantly conducted AF.

   If the transport time is long or the patient is at risk of developing ischemia, chemical cardioversion with amiodarone should be considered. Consult on-line medical support (OLMS).
4. With extremely irregular polymorphic rhythms, synchronization may not be possible.
5. When performing cardioversion on a patient with an implanted cardioverter defibrillator (ICD) or pacemaker, place the electrodes at least 8 centimeters (3 inches) away from the pulse generator. Do not perform cardioversion on a patient with a left ventricular assist device (LVAD).

LINKS

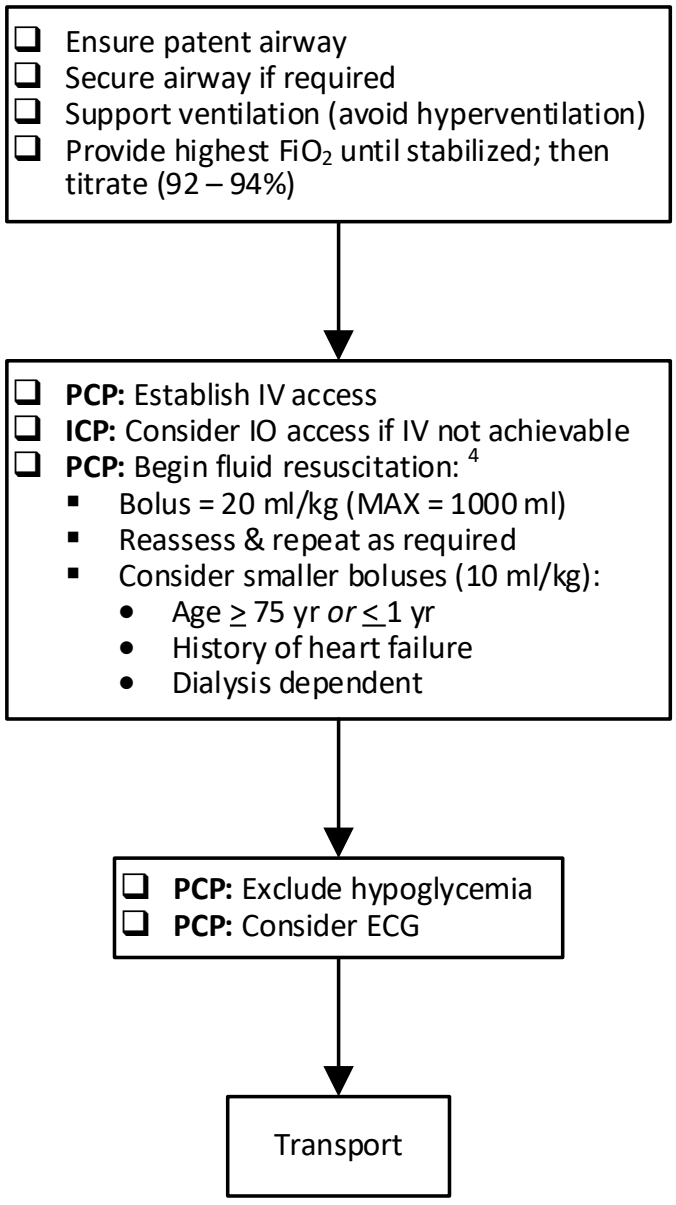
C01 - BASIC CARDIAC ARREST
C02 - ADVANCED CARDIAC ARREST
M01 - ADENOSINE
M14 - AMIODARONE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header • Table A moved to appendix

APPENDIX A - MAXIMUM HEART RATE BY AGE			
AGE IN YEARS	**HR (BPM)**	**AGE IN MONTHS**	**HR (BPM)**
> 18	100	24 - 36	140
15 - 18	105	18 - 24	150
12 - 15	110	12 - 18	155
8 - 12	115	9 - 12	160
6 - 8	120	6 - 9	170
4 - 6	130	3 - 6	175
3 - 4	135	0 - 3	180

Shared health Soins communs Manitoba	C07.1 - HYPOVOLEMIC & SEPTIC SHOCK	
	All ages	RESUSCITATION
Version date: 2023-08-05		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS

- Known or suspected shock not due to hemorrhage, anaphylaxis, adrenal insufficiency, or cardiac causes

CONTRAINDICATIONS

- For shock from blood loss not due to major trauma refer to C07.2 - HEMORRHAGIC SHOCK
- For shock due to a cardiac cause refer to C07.3 - CARDIOGENIC SHOCK
- For shock fron blood loss following delivery refer to D08 - POSTPARTUM HEMORRHAGE
- For shock with known or suspected anaphylaxis refer to E03 - ANAPHYLAXIS
- For shock with known adrenal insufficiency refer to E05 - ADRENAL CRISIS
- For shock due to blood loss from major trauma refer to F01 - MAJOR TRAUMA

NOTES

1. *Shock* is defined as a state of inadequate tissue perfusion. Although hypotension may be present, no specific blood pressure value defines shock. Shock may be present with a normal pressure. Multiple factors (eg. age, fitness, medications) may impact the vital signs and complicate the presentation of shock.
2. The common categories and causes of shock not due to trauma include:
   - **Hypovolemia** (eg. vomiting, diarrhea, decreased oral intake, polyuria)
   - Hemorrhage (eg. GI bleed, epistaxis, nonpregnant vaginal bleeding)
   - **Sepsis** / infection
   - Cardiogenic (eg. myocardial infarction, arrhythmia, acute valve dysfunction, myocarditis & cartdiomyopathy)
   - Obstructive (eg. tension pneumothorax, pericarditis)
   - Anaphylaxis
   - Adrenal insufficiency (adrenal crisis)
   - Neurogenic
3. A specific cause of shock can sometimes be difficult to determine, and more than one condition may contrtibute to the shock state (eg. myocardial dysfunction with sepsis). Once others causes have been excluded, the two most common reasons are sepsis and hypovolemia, which can be hard to differentiate. However, <u>the initial management of both is vigorous fluid resuscitation</u>.
4. Emerging evidence suggest that lactated Ringer's solution may improve outcomes in septic shock.

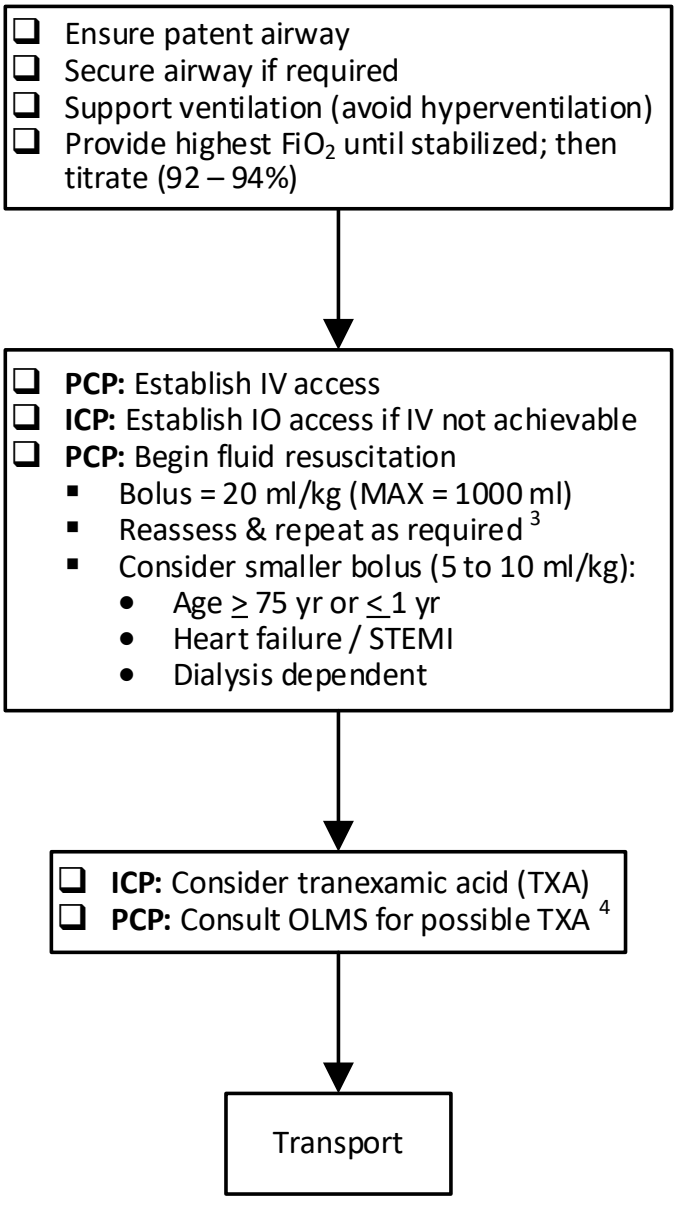
LINKS

C07.2 - HEMORRHAGIC SHOCK
C07.3 - CARDIOGENIC SHOCK
D08 - POSTPARTUM HEMORRHAGE
E03 - ANAPHYLAXIS
E05 - ADRENAL CRISIS
F01 - MAJOR TRAUMA

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	C07.2 HEMORRHAGIC SHOCK	
	All ages	RESUSCITATION
Version date: 2023-07-09		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS
• Shock that is due to nontraumatic hemorrhage

CONTRAINDICATIONS
• For shock due to blood loss after delivery refer to D08 - POSTPARTUM HEMORRHAGE • For shock due to blood loss from major trauma refer to F01 - MAJOR TRAUMA

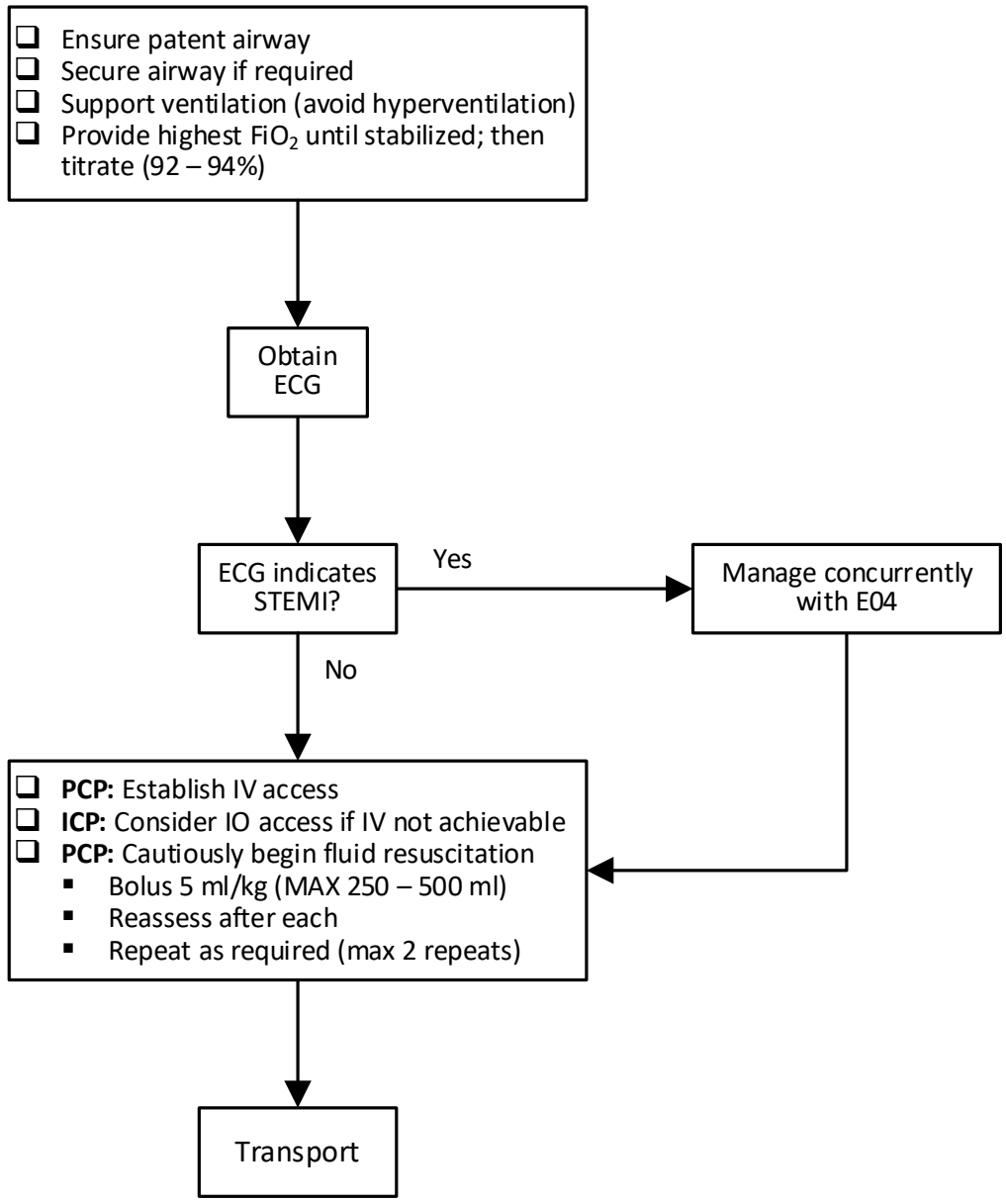
NOTES
1. *Shock* is defined as a state of inadequate tissue perfusion. Although hypotension may be present, no specific blood pressure (BP) value defines shock. Shock may be present with a normal BP. Multiple factors (eg. age, fitness, medications) may impact the vital signs and complicate the presentation of shock. 2. Common sources of nontraumatic hemorrhagic causing shock include the gastrointestinal tract (hematemesis, melena, hematochezia), the nose and nasopharynx (epistaxis), and the nonpregnant uterus (menorrhagia). 3. While there is limited research into the benefit of *permissive hypotension* in nontraumatic hemorrhagic shock, aggressive crystalloid administration is known to create coagulopathy and hypothermia (impairing clotting), and increases mortality. Consider targeting to an age-appropriate lower target systolic BP to maintain adequate blood flow to keep the heart and brain adequately perfused. 4. There is limited evidence to support the use of tranexamic acid in nontraumatic hemorrhage, but it may be of benefit in some situations. Paramedics with primary work scope must consult on-line medical support (OLMS) if considering tranexamic acid (TXA) for nontraumatic hemorrhage.

LINKS
D08 - POSTPARTUM HEMORRHAGE F01 - MAJOR TRAUMA M28 - TRANEXAMIC ACID

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	C07.3 - CARDIOGENIC SHOCK	
	All ages	RESUSCITATION
Version date: 2023-08-01		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• Shock known or suspected to be due to a cardiac cause

CONTRAINDICATIONS
• Shock due to arrhythmias should be managed as per C05 - UNSTABLE BRADYCARDIA or C06 - UNSTABLE TACHYCARDIA

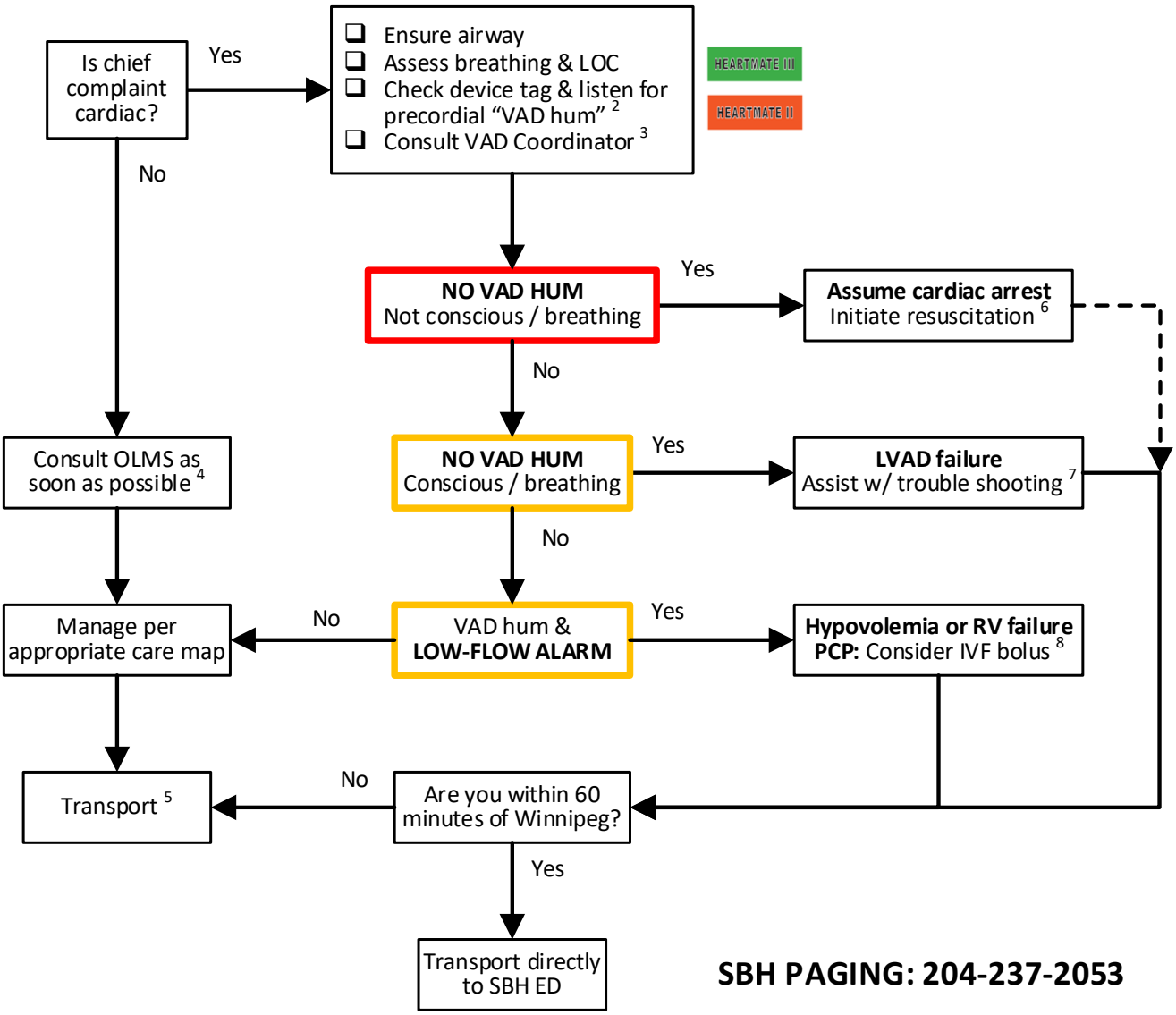
NOTES
1. *Shock* is defined as a state of inadequate tissue perfusion. Although hypotension may be present, no specific blood pressure (BP) value defines shock. Shock may be present with a normal BP. Multiple factors (eg. age, fitness, medications) may impact the vital signs and complicate the presentation of shock. 2. Common causes of cardiogenic shock include acute coronary syndrome, arrhythmia, acute mitral or aortic regurgitation, myocarditis and cardiomyopathy. 3. Cardiogenic shock may or may not be accompanied by signs of pulmonary edema.

LINKS
C05 - UNSTABLE BRADYCARDIA C06 - UNSTABLE TACHYCARDIA E04 - ACUTE CORONARY SYNDROME & STEMI

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	C08 - LEFT VENTRICULAR ASSIST DEVICE (LVAD)	
	All ages	RESUSCITATION
Version date: 2023-11-18		Effective date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• All patients with a left ventricular assist device (LVAD) regardless of the chief complaint

CONTRAINDICATIONS
• Not applicable

NOTES

1. LVAD technical problems are rare. Major clinical conditions affecting LVAD patients include bleeding, sepsis and stroke.

   Patients and their caregivers are well-trained in VAD trouble-shooting and management, and will likely have contacted the VAD Coordinator or on- cardiologist before calling 911.

2. The St. Boniface Hospital - Cardiac Sciences Program currently uses the Abbot Heartmate III (green tag) ventricular assist device. Paramedics may occasionally encounter a patient with an older Heartmate II (orange tag) unit.

   A "humming" or "whirling" sound (heard best in the precordium) indicates that the pump is functioning.

   Both devices have continuous flow pumps so you may not be able to feel a pulse. I25t may be difficult to measure the blood pressure (BP) with a manual cuff. Use a non-invasive BP machine to monitor the mean arterial pressure (MAP). A MAP of 70 to 90 mmHg is adequate for most patients.

   A low pulse oximetry reading may reflect inadequate peripheral perfusion, rather than hypoxemia. A normal pulse oximetry waveform is likely to be accurate.

3. If the chief complaint is cardiac, consult the **VAD coordinator** first through the St. Boniface Hospital (SBH) paging operator at **204-237-2053**. They can provide support and direction regarding the device itself.
4. If the chief complain is not cardiac, consult on-line medical support (OLMS) first. They may subsequently refer you to the VAD coordinator if necessary.
5. If you are within 60 minutes of Winnipeg proceed directly to the SBH emergency department (ED). If you are beyond 60 minutes, you must consult OLMS for destination decision-support.
6. It may be difficult to differentiate an extremely low perfusion from a true cardiac arrest. If a patient is not conscious and / or breathing and there is no VAD hum, assume the patient is in cardiac arrest and initiate resuscitation.

   Chest compressions can be safely done if necessary. Patients can be defibrillated or paced while attached to the VAD. All resuscitation drugs can be administered if indicated. The pump will not affect electrocardiogram acquisition or continuous cardiac monitoring. DO NOT DISCONTINUE RESUSCITATION BEFORE CONSULTING OLMS.

7. The absence of a VAD hum indicates that the LVAD is not pumping. A stable patient may rapidly go into acute heart failure, pulmonary edema, or cardiogenic shock. Assist the patient or caregiver with device trouble-shooting and management (refer to appendix A). Trouble shooting includes the following steps:
   - Checking & securing all connections to the controller.
   - Replacing the batteries one at a time or connecting to the power base unit. Never remove both batteries at the same time as this may cause the pump to stop.

- Changing the controller. Paramedics will only change the controller under the direction of the patient, their caregiver or the VAD coordinator.

8. If the “red heart” alarm on the Heartmate III is flashing (appendix A, page 5) it indicates that the flow may be too low and the patient may be hypovolemic or have right heart failure. If the chest is clear consider administering intravenous fluid by bolus (5 to 10 ml/kg). Reassess after administration and repeat once if indicated.
9. Ensure that all VAD equipment and the patient’s caregiver, if available, accompany the patient, and provide appropriate pre-arrival notification of receiving emergency department (ED) personnel.

LINKS
C01 - BASIC CARDIAC ARREST C02 - ADVANCED CARDIAC ARREST

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Simplified flow chart • Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A:

CONTROLLERS

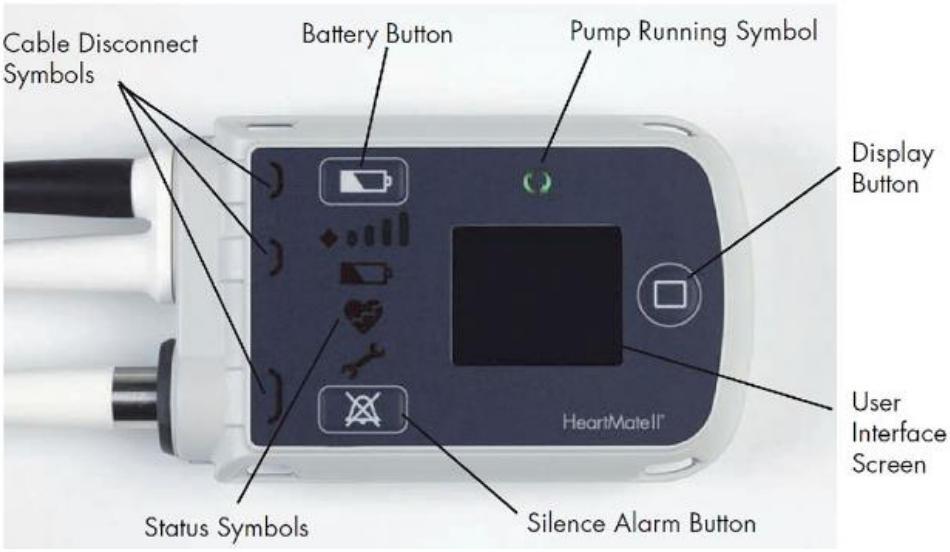
CONDENSED FROM THE INTERNATIONAL CONSORTIUM OF CIRCULATORY ARREST CLINICIANS EMS GUIDE (JANUARY 2019)

HEARTMATE III - POCKET CONTROLLER:

Yellow or Red Battery Alarm: Need to Change Batteries. See changing batteries section on next page.

Red Heart Flashing Alarm: This may indicate a Low Flow Hazard. Check patient--the flow may be too low. If patient is hypovolemic, give volume. If patient is in right heart failure-- treat per protocol. If the pump has stopped check connections, batteries and controllers as instructed in the section above.

HEARTMATE II - POCKET CONTROLLER:



APPENDIX B:

TROUBLE SHOOTING HEARTMATE II & III

CHANGING BATTERIES & CONTROLLERS

CONDENSED FROM THE INTERNATIONAL

CONSORTIUM OF CIRCULATORY ARREST CLINICIANS

EMS GUIDE (JANUARY 2019)

NOTE: At December 2020, the SBH Cardiac Science Program no longer supplies patients with the external peripheral controller (EPC) for the Heartmate II device.

Trouble Shooting HeartMate III®

Changing Batteries

WARNING: At least one power lead must be connected to a power source AT ALL TIMES. Do not remove both batteries at the same time or the pump will stop.

- Obtain two charged batteries from patient's accessory bag or battery charger. The charge level of each gray battery can be assessed by pressing the battery button on the battery. (Figures 1 and 2)
- Remove only **ONE** battery from the clip by pressing the button on the grey clip to unlock the battery. (Figure 3)
- Controller will start beeping and flashing yellow signals and will read **POWER DISCONNECT** on the front screen. (Figure 4)
- Replace with new battery by lining up RED arrows on battery and clip. Gently tug on battery to ensure connection. If battery is properly secured, the beeping and yellow flashing will stop. (Figure 5)
- Slide a new, fully-charged battery (Figure 4) into the empty battery clip by aligning the RED arrows. The battery will click into the clip. Gently tug at battery to ensure connection. If battery is properly secured, the beeping and green flashing will stop.
- Repeat previous steps with the second battery and battery clip.


Figure 1


Figure 2


Figure 3

Figure 4


Figure 5

CAUTION—Investigational device. Limited by Federal (or United States) law to investigational use.

This guide does not supersede manufacturer instructions. Copy with permission only.

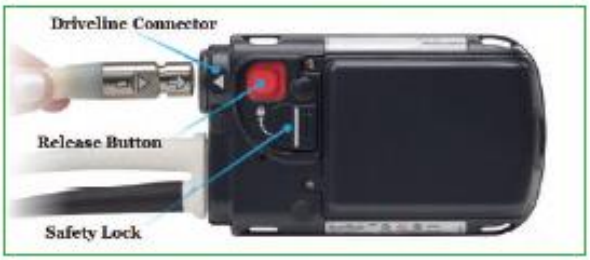
January 2019

Trouble Shooting HeartMate III® with Pocket Controllers

Changing Controllers

- Place the replacement Controller within easy reach, along with the batteries/battery clips. The spare Controller is usually found in the patient's travel case.
- Make sure patient is sitting or lying down since the pump will momentarily stop during this procedure.
- Attach the battery clips to the spare controller by lining up the half moons and gently pushing together and attach the batteries to the spare controller by aligning the RED arrows.

- On the back of the replacement controller, rotate down the perc lock so the red tab is fully visible. Repeat this step on the original controller until the red tab is fully visible.



- Disconnect the drive-line from the original controller by pressing down on the red tab and gently pulling on the metal end. The pump will stop and an alarm will sound. **Note:** The alarm will continue until the original controller is put to sleep. You can silence the alarm by pressing the silence button.

Getting the replacement controller connected and pump restarted is the first priority.

- Connect the replacement Controller by aligning the **BLACK ARROWS** on the driveline and replacement Controller and gently pushing

the driveline into the replacement Controller. The pump should restart, if not complete the following steps:

Step 1. Firmly press the Silence Alarm or Test Select Button to restart the pump.

Step 2. Check the power source to assure that power is going to the controller.

Step 3. Assure the perc lead is fully inserted into the socket by gently tugging on the metal end. DO NOT pull the lead.

- After the pump restarts, rotate up the perc lock on the new controller so the red tab is fully covered. If unable to engage perc lock to a fully locked position, gently push the driveline into the controller to assure proper connection. Retry to engage perc lock.
- Disconnect power from the original Controller. The original Controller will stop alarming once power is removed.
- Hold down battery symbol for 5 full seconds for complete shutdown of old controller.

Adapted from Sweet, L. and Wolfe, Jr., A. Mechanical Circulatory Devices in Transport in ASTNA: Patient Transport Principles and Practice, 4th ed., Mosby, 2010 in press.

CAUTION—Investigational device. Limited by Federal (or United States) law to investigational use.

This guide does not supersede manufacturer instructions. Copy with permission only. **January 2019**

Trouble Shooting HeartMate II®

Changing Batteries

WARNING: At least one power lead must be connected to a power source AT ALL TIMES. Do not remove both batteries at the same time or the pump will stop.


Figure 1

- Obtain two charged batteries from patient's accessory bag or battery charger. The charge level of each gray battery can be assessed by pressing the battery button on the battery. (Figures 3 and 4)
- Remove only ONE battery from the clip by pressing the button on the grey clip to unlock the battery. (Figure 1)
- Controller will start beeping and flashing green signals.
- Replace with new battery by lining up RED arrows on battery and clip. (Figure 2)
- Slide a new, fully-charged battery (Figure 4) into the empty battery clip by aligning the RED arrows. The battery will click into the clip. Gently tug at battery to ensure connection. If battery is properly secured, the beeping and green flashing will stop.
- Repeat previous steps with the second battery and battery clip.


Figure 2


Figure 3


Figure 4

Changing Controllers

- Place the replacement Controller within easy reach, along with the batteries/battery clips. The spare Controller is usually found in the patient's travel case.
- Make sure patient is sitting or lying down since the pump will momentarily stop during this procedure.

- Attach the battery clips to the spare controller by lining up the half moons and gently pushing together and attach the batteries to the spare controller by aligning the RED arrows. **ALARMS WILL SOUND-THIS IS OK.**
- Depress the silence alarm button (upside-down bell with circle) until the alarm is silenced on the new, replacement Controller.
- Rotate the perc lock on the replacement controller in the direction of the "unlocked" icon until the perc lock clicks into the fully- unlocked position. Repeat this same step for the original Controller until the perc lock clicks into the unlocked position.

- Disconnect the perc lead/driveline from the original controller by pressing the metal release tab on the connector socket. The pump will stop and an alarm will sound.

Note: The alarm will continue until power is removed from the original Controller. *Getting the replacement Controller connected and the pump restarted is the first priority.*

- Connect the replacement Controller by aligning the BLACK LINES on the driveline and replacement Controller and gently pushing the driveline into the replacement Controller. The pump should restart, if not complete the following steps:

Step 1. Firmly press the Silence Alarm or Test Select Button to restart the pump.

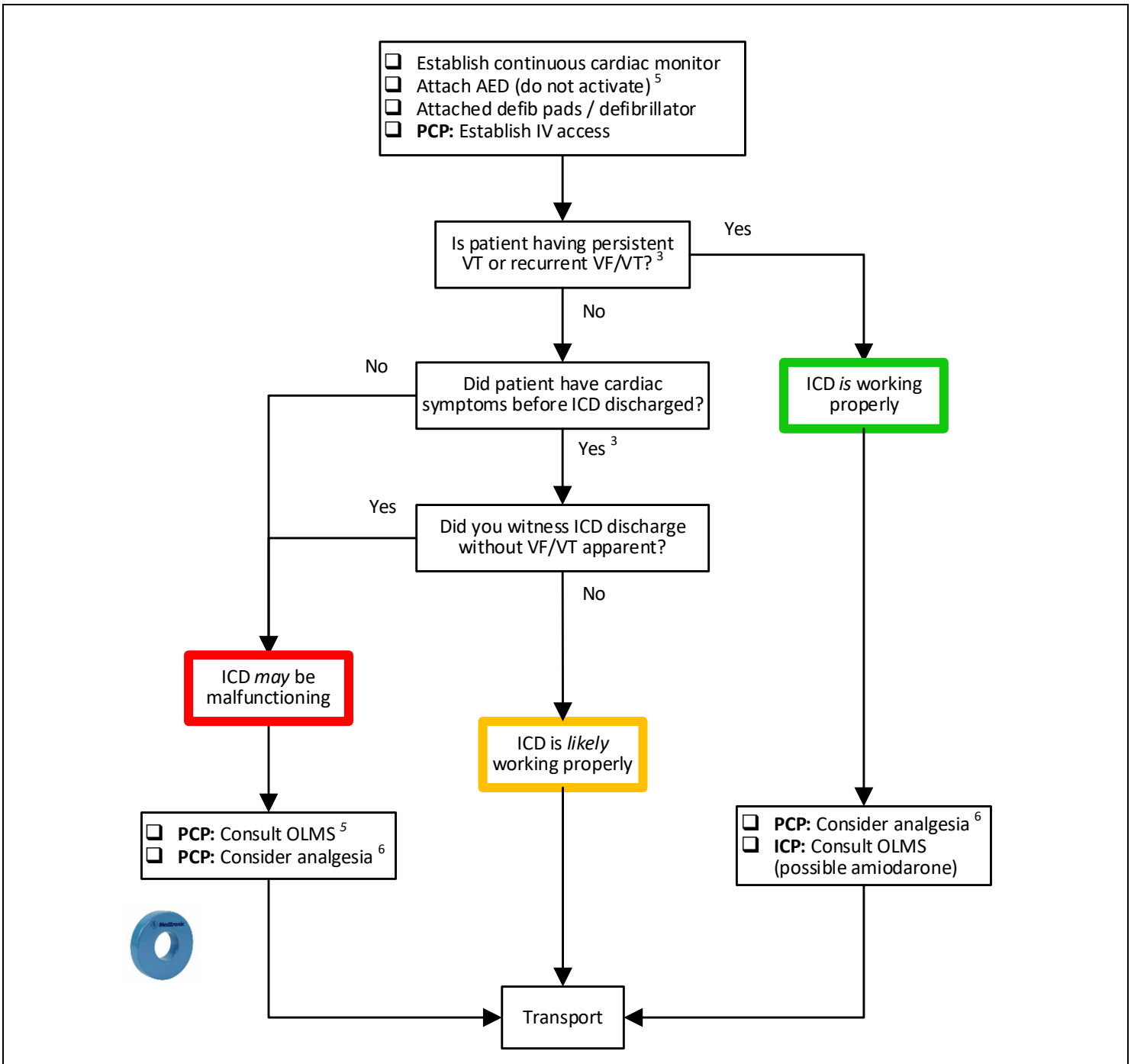
Step 2. Check the powersource to assure that power is going to the controller.

Step 3. Assure the perc lead is fully inserted into the socket by gently tugging on the metal end. DO NOT pull the lead.

- After the pump restarts, rotate the perc lock on the new controller in the direction of the "locked" icon until the perc lock clicks into the fully-locked position. If unable to engage perc lock to the locked position, gently push the driveline into the controller to assure a proper connection. Retry to engage perc lock.
- Disconnect power from the original Controller. The original Controller will stop alarming once power is removed.

January 2019

Shared health Soins communs Manitoba	C09 - IMPLANTABLE CARDIOVERTER DEFIBRILLATOR	
	Adult & adolescent	RESUSCITATION
Version date: 2023-08-05		Effective date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & above	ICP: PCP-IC only	None - All providers

QRG: AMIODARONE (M14)	
TEN YEARS & OLDER: • 150 mg IV over ten minutes • Repeat 150 mg once in ten minutes if required	*This QRG is for dosing only. Refer to the medication document for additional information required for safe administration.*

INDICATIONS

- Any patient with implanted cardioverter defibrillator (ICD) who reports that it has discharged

CONTRAINDICATIONS

- Not applicable

NOTES

1. ICD malfunction is uncommon. If a patient reports that their ICD has discharged, paramedics should assume that a life-threatening dysrhythmia activated the ICD until proven otherwise. All patients should have continuous cardiac monitoring, and paramedics should be prepared for external defibrillation if necessary.
2. Proper ICD assessment requires interrogation of the ICD with specific expertise and special equipment only available in hospital.
3. The presence of ventricular tachycardia (VT) or ventricular fibrillation (VF) indicates that the ICD is discharging appropriately. **DO NOT INACTIVATE THE ICD.**
4. The acute onset of cardiac symptoms, including palpitations, fainting or lightheadedness, chest pain, or diaphoresis before the ICD shocked the patient, suggest that the shock was terminating VT and is working appropriately. **DO NOT INACTIVATE.**
5. **Except during cardiac arrest, paramedics must consult on-line medical support (OLMS) before attempting magnet inactivation.**

   Application of a *donut magnet* over top of an ICD temporarily suppresses the device's arrhythmia monitoring and shocking functions, but the pacing function will continue to work. When a device's arrhythmia functions are deactivated, it may emit a constant tone or intermittent beep depending upon the device manufacturer.

   Removing the magnet will allow the ICD to resume its arrhythmia monitoring and suppression functions.
6. ICD shocks are painful and can be very distressing to the patient. Paramedics should consider administration of opioid analgesia, with adjunctive sedation as required.

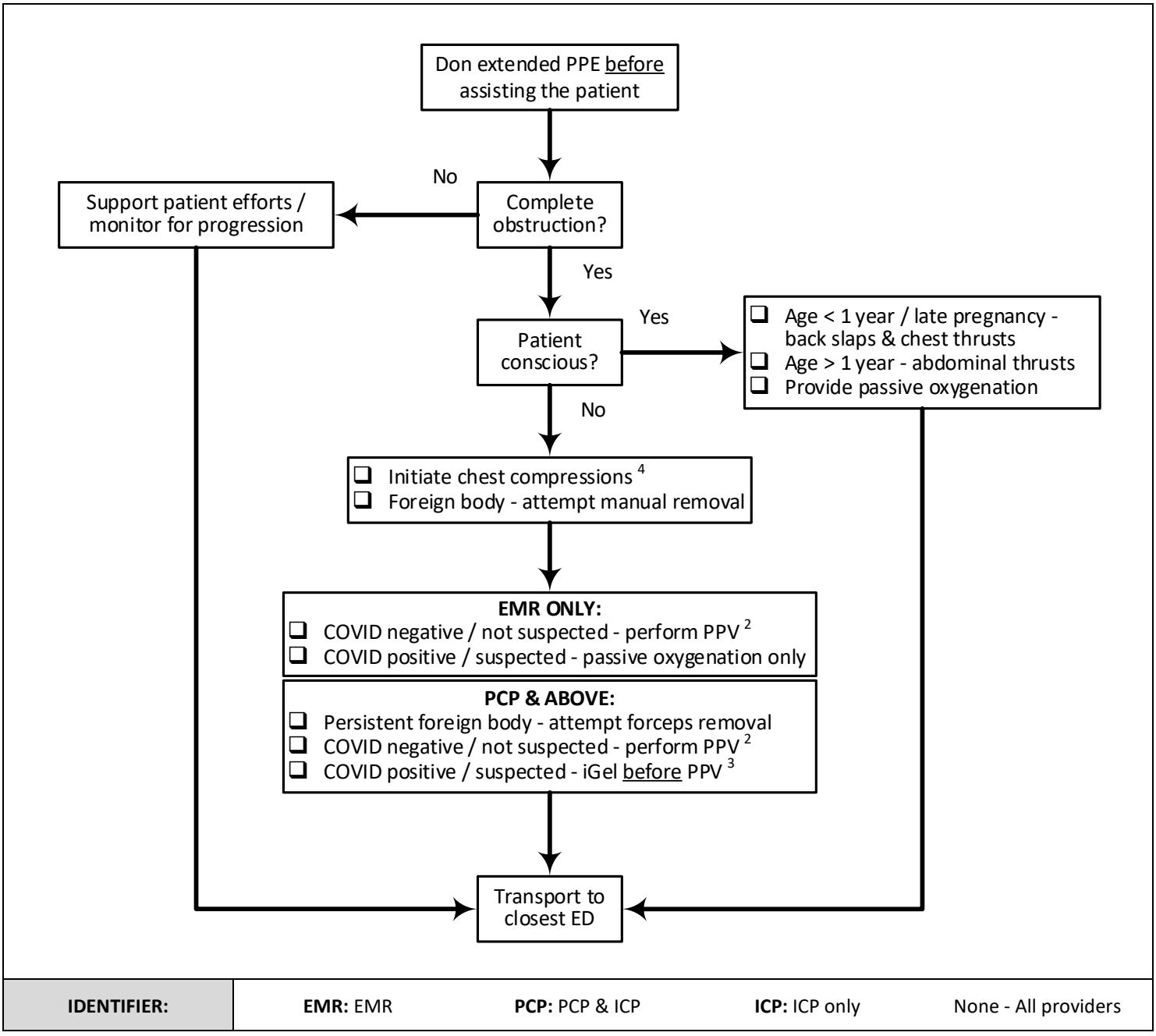
CARDIAC ARREST
1. Chest compressions can be safely delivered during ICD shock delivery. 2. When applying AED pads on a patient with an ICD place the electrodes at least 8 centimeters (3 inches) away from the pulse generator. 3. If performing transcutaneous pacing (TCP) inactivate the ICD with a donut magnet. 4. In the event of a cardiac arrest, the ICD will promptly deliver a pre-programmed cycle of multiple shocks over about 30 to 60 seconds. 5. Visible muscle contractions indicate that the unit is working and delivering its shocks. If present, paramedics should allow the cycle to complete before attempting external shocks. 6. If the ICD has exhausted all of its shocks (no more visible muscle contractions) and has failed to terminate the arrhythmia, paramedics should continue to provide external shocks using an automated or manual defibrillator. DO NOT INACTIVATE THE ICD.

LINKS
M14 - AMIODARONE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	C11 – AIRWAY OBSTRUCTION	
	All ages	RESUSCITATION
Version date: 2023-09-16		Effective Date: 2023-10-24 (0700)



IDENTIFIER:	EMR: EMR	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• Partial or complete airway obstruction

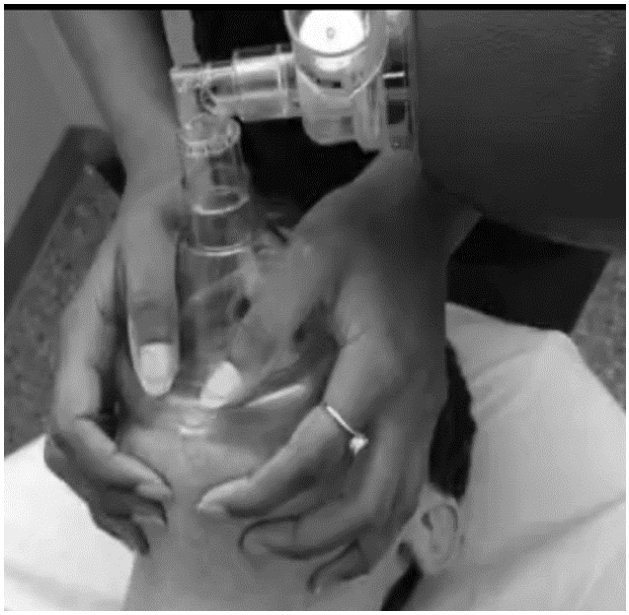
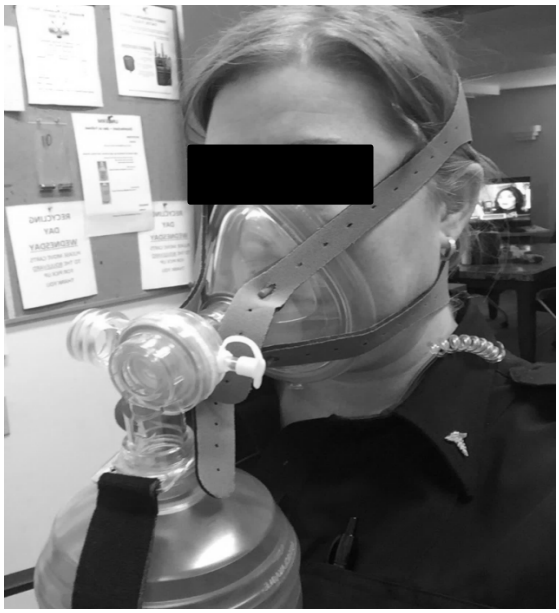
CONTRAINDICATIONS
• Not applicable

NOTES
1. Extended personal protective equipment (PPE) is required for the management of any patient with an airway obstruction. Airway manipulation is an aerosol generating medical procedure (A09).
2. Positive pressure ventilation (PPV) can be performed if the patient has tested negative for COVID that day (by PCR or RAD administered by a health care provider) and the patient's status is unknown but COVID is reasonably not suspected based on circumstances leading up to the event.
3. Do not perform PPV without a sealed airway if the patient has tested positive for COVID in the preceding ten days (by PCR or self-administered RAD), or the patient's status is unknown but COVID is suspected based on the patient's clinical presentation, or known exposure.
4. Passive oxygenation is provided using a self-inflating ventilation bag and mask (BVM) and a P99 filter with oxygen delivered at a flow rate of 15 liters per minute. DO NOT SQUEEZE THE BAG. The system can be kept closed by using a two-hand mask seal or by attaching the bag to a well-fitted CPAP mask (appendix A).

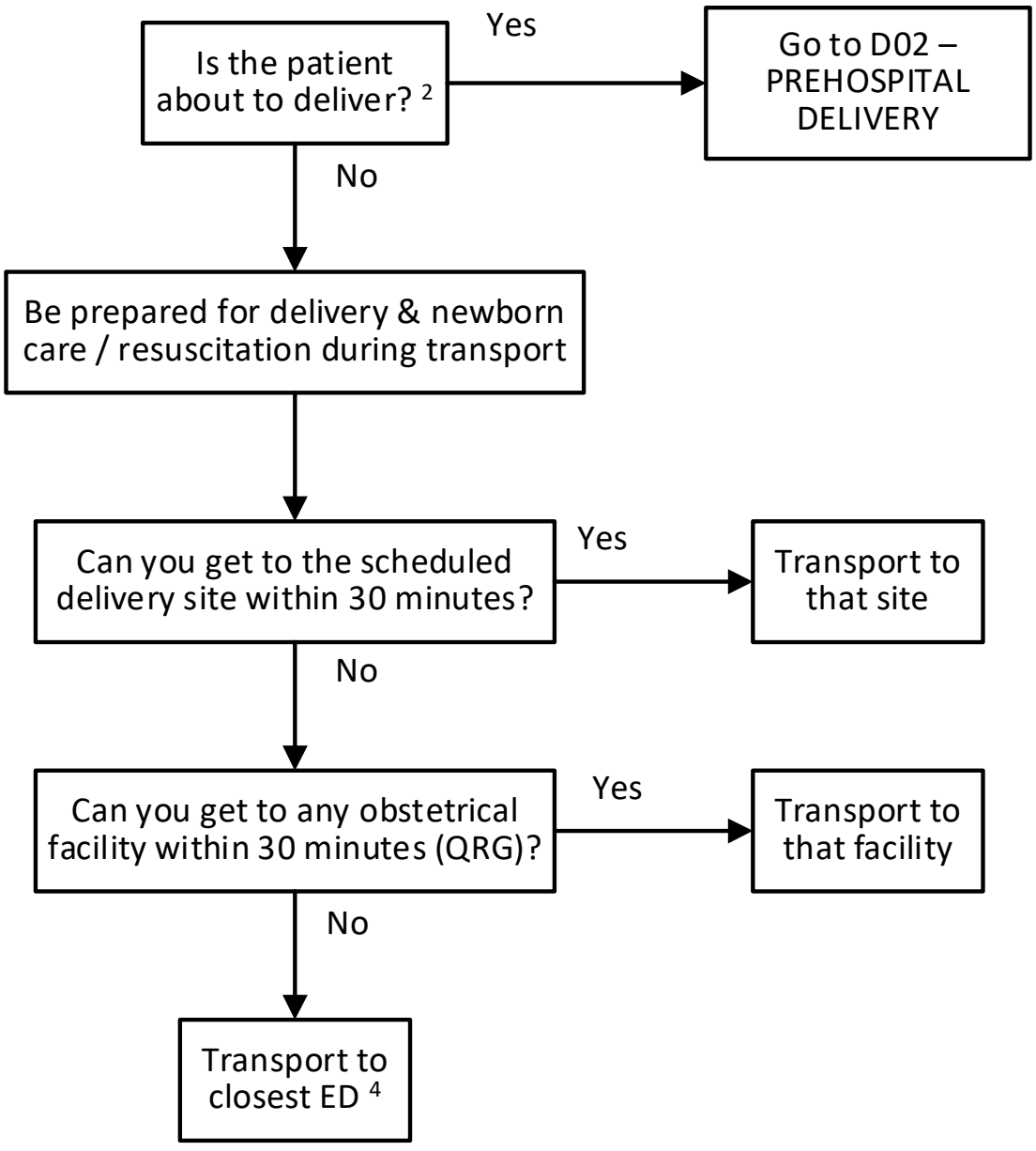
LINKS
• A09 - AEROSOL GENERATING MEDICAL PROCEDURES

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Revised & retitled • Flow chart & notes revised • Temporary delegation to allow EMR to insert iGel has expired • PPV without sealed airway can be performed if COVID negative or not suspected • The acronym “BIAD” has been replaced by iGel • Figure A from C12 included • Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: PASSIVE OXYGENATION WITH VBM & MOUTH / NOSE SEALED	
TWO-HAND MASK SEAL	**CPAP MASK SEAL**
	

Shared health Soins communs Manitoba	**D01.1 - PRIMARY TRANSPORT DURING LABOR**
	MATERNAL & NEWBORN CARE
Version date: 2023-07-11	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: OBSTETRICAL FACILITIES

(*) Paramedics should call ahead to confirm that normal obstetrical services are currently available.

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- Thompson General Hospital
- Yorkton Regional Health Centre (Yorkton, SK) *

INDICATIONS

- Transport of a patient in labor on primary response

CONTRAINDICATIONS

- None

NOTES

1. Obstetrical calls can be very stressful. Be prepared & call early for assistance or intercept. Consult on-line medical support (OLMS) at any time.
2. Delivery should be considered imminent if the patient complains of an urge to "push", "bear down" or "have a bowel movement", the perineum is bulging, or the fetal head is crowning.
3. Every effort should be made to avoid birth during transport. Paramedics will not initiate transport of a patient about to deliver regardless of the transport duration. Birth on scene is considered safer than delivery during transport.
4. If the transport time is excessive, delivery in a non-obstetrical facility is safer than delivery on the road. Additional resources are available to exclude late labor, perform delivery, provide newborn care, or accompany patient transfer. If necessary, the OLMS physician can assist with destination decision-making. Ensure pre-arrival notification.
5. If the patient should develop hypotension while supine during transport, elevate the right hip 4 to 6 inches and manually displace the uterus to the patient's left side (appendix A).

LINKS
D02 - PREHOSPITAL DELIVERY D03 - NEWBORN CARE & RESUSCITATION

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: SUPINE HYPOTENSION SYNDROME

Some patients after 20 weeks gestation may experience hypotension when they lay down. Compression of the inferior vena cava by the gravid uterus will impede venous return to the heart resulting in hypotension. Unlike other causes of hypotension this may be accompanied by bradycardia due to an increase in vagal tone from pressure on the vena cava (figure 1). Elevating the patient's right side and manually displacing the uterus to the patient's left side will usually provide relief (figure 2).

Supine hypotension is uncommon under twenty weeks gestational age because the uterus is not yet large enough to compress the inferior vena cava. Always consider all possible causes of hypotension.

FIGURE 1: VENA CAVAL COMPRESSION

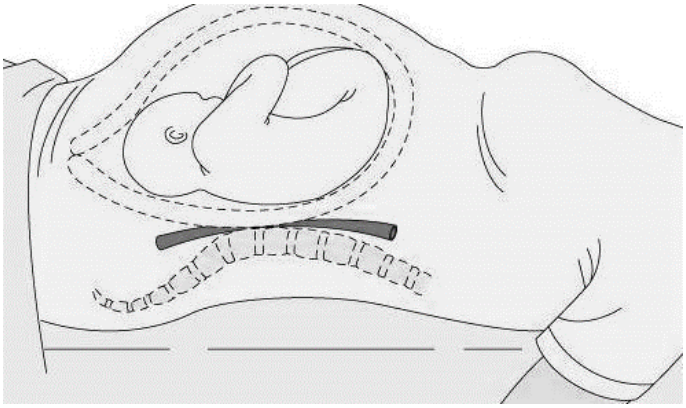
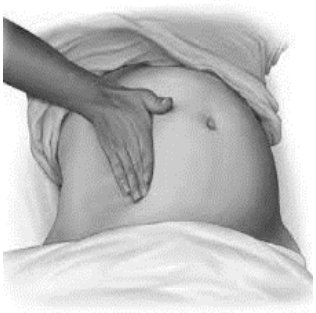
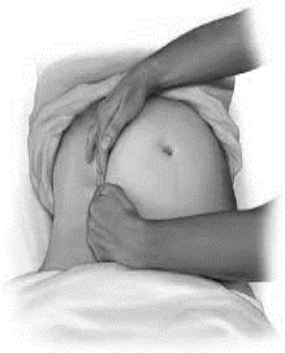
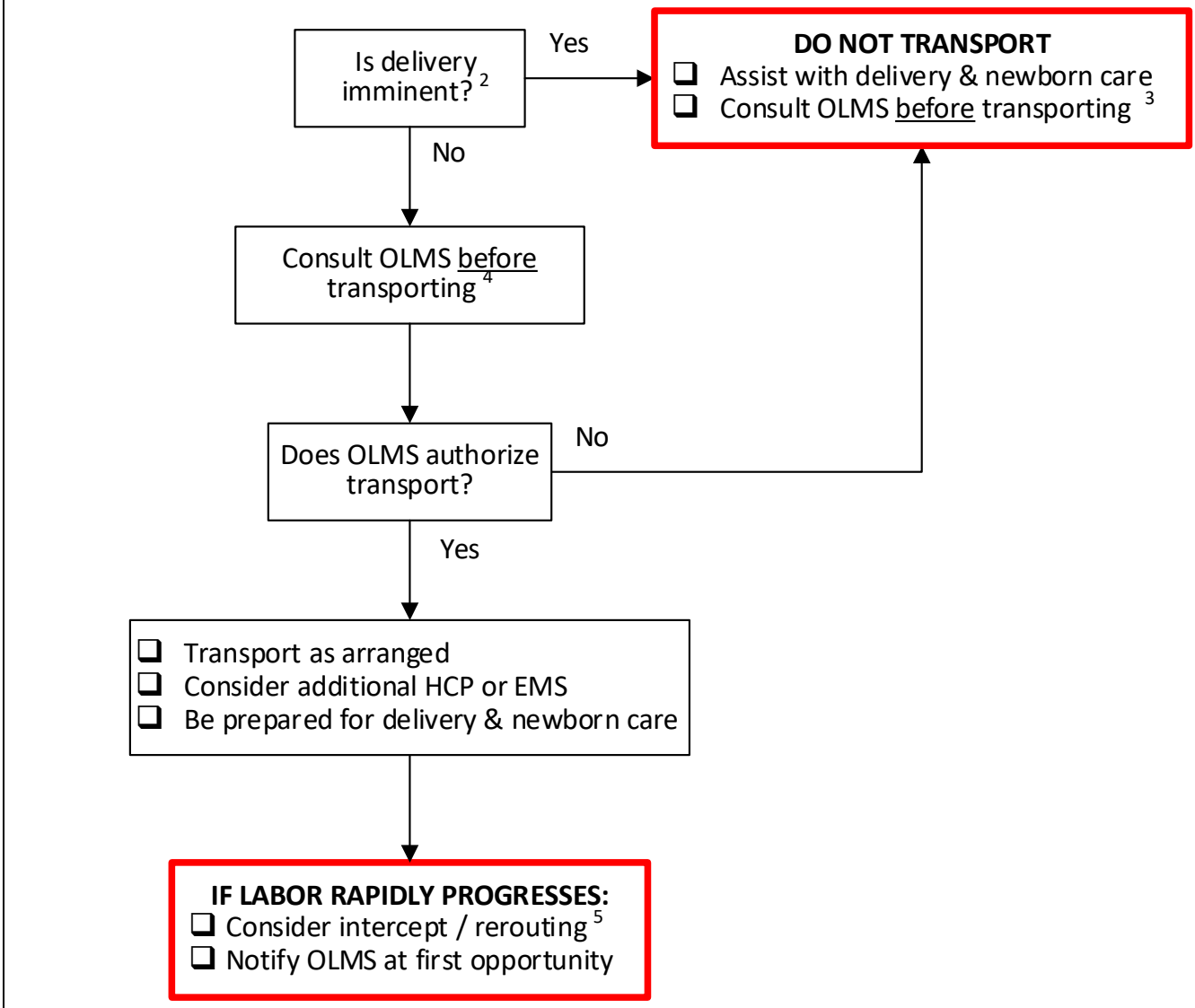


FIGURE 2: MANUAL UTERINE DISPLACEMENT





Shared health Soins communs Manitoba	**D01.2 - INTERFACILITY TRANSPORT DURING LABOR**
	MATERNAL & NEWBORN CARE
Version date: 2023-07-10	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: OBSTETRICAL FACILITIES

(*) Paramedics should call ahead to confirm that normal obstetrical services are currently available.

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- Selkirk Regional Health Centre (Selkirk)
- St. Anthony's General Hospital (The Pas)
- St. Boniface Hospital (Winnipeg)
- Thompson General Hospital
- Yorkton Regional Health Centre (Yorkton, SK) *

INDICATIONS

- Interfacility transport (IFT) of a patient in labor

CONTRAINDICATIONS

- None

NOTES

1. The onset of labor is usually identified by the beginning of regular painful uterine contractions. The *first stage* is the interval from the labor onset to full cervical dilatation. This stage is divided into latent and active phases. Vaginal examination can be helpful in differentiating the phases, but in practice has a wide margin of error.

   The *latent phase* is characterized by gradual cervical changes. The *active phase* is considered to begin when cervical dilatation reaches approximately half way. The transition usually occurs at about 5 centimeters in a term pregnancy, but can be less in preterm labor.

   The duration of each phase is highly variable and labor will generally be quicker after the first vaginal delivery.

2. Delivery should be considered *imminent* if the patient complains of an urge to "push", "bear down" or "have a bowel movement", the perineum is bulging, or the fetal head is crowning. Paramedics will not transport a patient when the patient is delivering or delivery is determined to be imminent regardless of the transport duration.
3. After delivery of the fetus consult for on-line medical support (OLMS) before transporting.
4. The decision to perform an interfacility transfer (IFT) with a patient in active labor is complex. OLMS will require the following information:
   - How many prior pregnancies (gravida) and deliveries (para)?
   - What is the gestational age of the pregnancy?
   - Is there one or multiple fetuses?
   - Is the patient having regular, painful contractions? If so, how far apart are the contractions?
   - What has been the duration of previous labors?
   - Has the patient had regular prenatal care?
   - Has the patient had a vaginal examination in the last 30 minutes? Who performed the vaginal examination?
   - What is the station and dilatation on vaginal exam?

- Are the membranes ruptured? If so, is there meconium in the amniotic fluid?
- What is the expected transport duration?
- Are there enough qualified personnel available for transfer? Is EMS intercept possible? Are there alternative facilities en route if necessary?
- What is the name and contact information for the referring health care provider (HCP)?
- What is the name and contact information for the receiving HCP?

5. **Birth in a non-obstetrical facility is preferable to delivery on the road**. Rerouting an emergency department (ED) along the way may become necessary. If rerouting, ensure appropriate pre-arrival notification of ED staff. Paramedics will over-ride a redirection (diversion) advisory if necessary.
6. If the patient should develop hypotension while supine during transport elevate the right hip 4 to 6 inches and manually displace the uterus to the patient's left side (appendix A).

LINKS
D02 – PREHOSPITAL DELIVERY D03 – NEWBORN CARE & RESUSCITATION

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: SUPINE HYPOTENSION SYNDROME

Some patients after 20 weeks gestation may experience hypotension when they lay down. Compression of the inferior vena cava by the gravid uterus will impede venous return to the heart resulting in hypotension. Unlike other causes of hypotension this may be accompanied by bradycardia due to an increase in vagal tone from pressure on the vena cava (figure 1). Elevating the patient's right side and manually displacing the uterus to the patient's left side will usually provide relief (figure 2).

Supine hypotension is uncommon under twenty weeks gestational age because the uterus is not yet large enough to compress the inferior vena cava. Always consider all possible causes of hypotension.

FIGURE 1: VENA CAVAL COMPRESSION

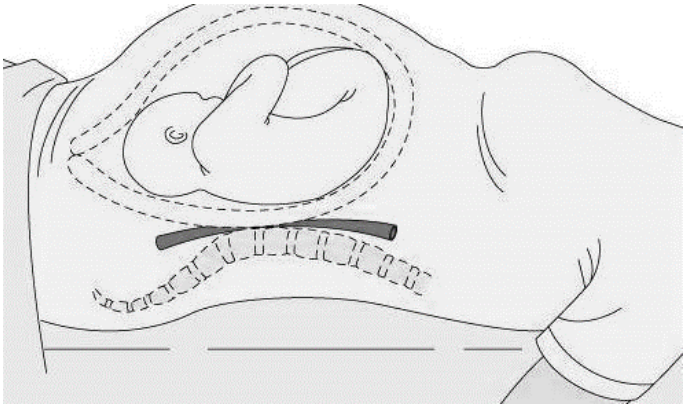
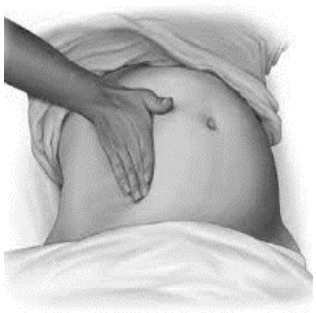
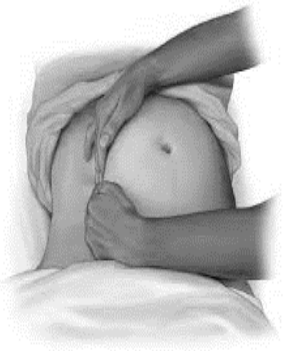
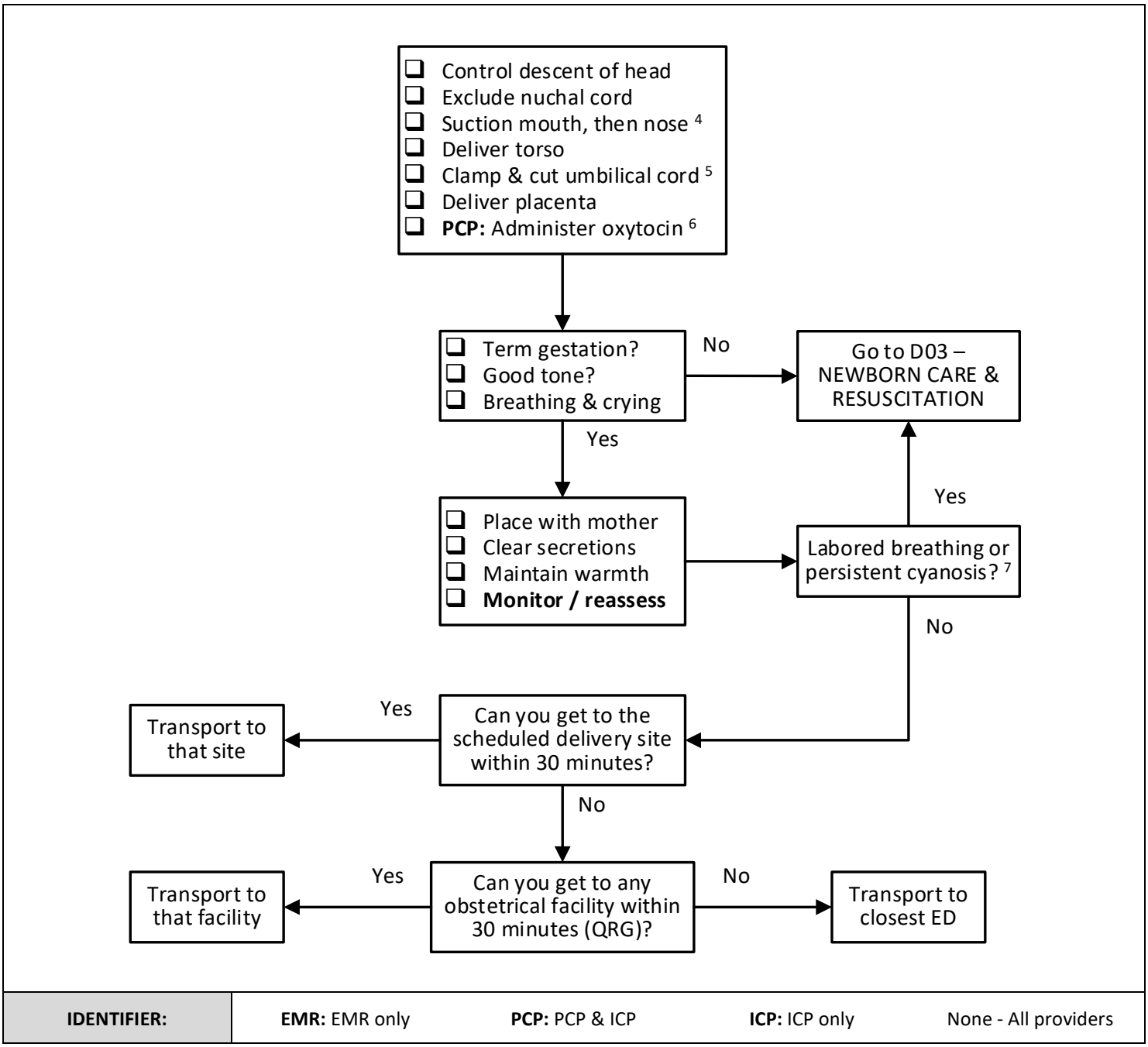


FIGURE 2: MANUAL UTERINE DISPLACEMENT





Shared health Soins communs Manitoba	**D02- PREHOSPITAL DELIVERY**
	MATERNAL & NEWBORN CARE
Version date: 2023-07-09	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: OBSTETRICAL FACILITIES

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INDICATIONS

- Unplanned delivery outside of hospital

CONTRAINDICATIONS

- Not applicable

NOTES

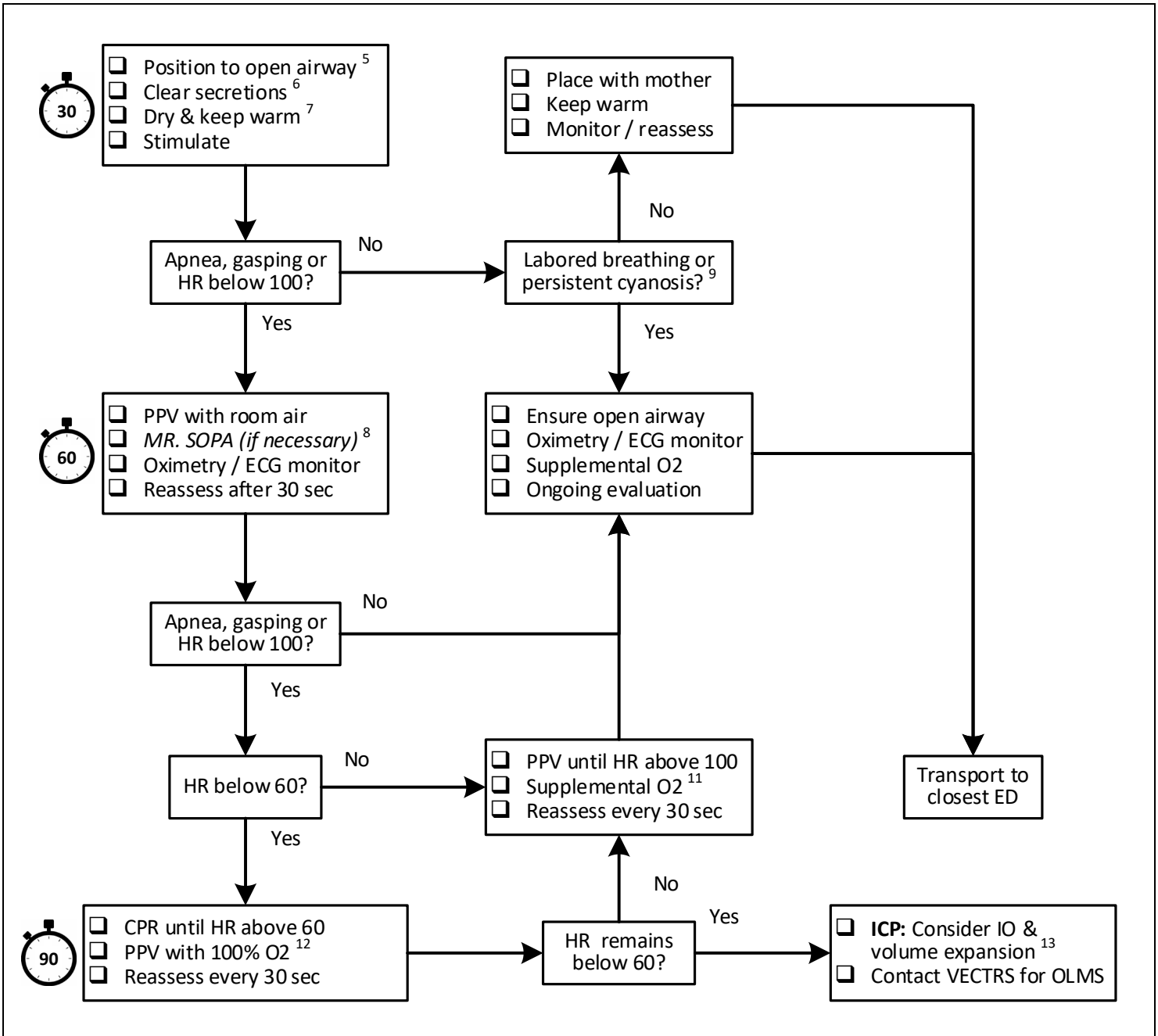
1. Obstetrical calls can be very stressful. Be prepared & call early for assistance or intercept. Consult on-line medical support (OLMS) at any time.
2. Delivery should be considered imminent if the patient complains of an urge to "push", "bear down" or "have a bowel movement", the perineum is bulging, or the fetal head is crowning.
3. Every effort should be made to avoid birth during transport. Paramedics will not initiate transport of a patient about to deliver regardless of the transport duration. Birth in hospital is preferred, but it is safer on-scene than during transport.
4. Suction the mouth before the nose ("M before N") with a bulb syringe. If using a suction catheter, do not exceed 80 to 100 mmHg of negative pressure.
5. For vigorous term and preterm newborns, current evidence suggests that cord clamping should be delayed for 30 to 60 seconds. If the infant is not vigorous, the priority is on assessment and the cord must be clamped immediately.
6. In the case of multiple gestations, do not administer oxytocin until after delivery of the final infant**.**
7. Continuously monitor the newborn for colour and respiratory effort. The initial cyanosis of the lips, tongue and torso should resolve by 10 minutes after delivery. Cyanosis of the hands and feet is not indicative of hypoxemia.

LINKS
D03 - NEWBORN CARE & RESUSCITATION M16 - OXYTOCIN

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	**D03 - NEWBORN CARE & RESUSCITATION**
	MATERNAL & NEWBORN CARE
Version date: 2023-09-17	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG #1: NEONATAL CARDIOPULMONARY RESUSCITATION (CPR)	
POSITIVE PRESSURE VENTILATION 40 to 60 per minute x 30 seconds *"Breathe . . . two . . . three . . . "*	**CHEST COMPRESSIONS** 120 per minute (3 to 1 with PPV) x 30 seconds *"One & two & three & breathe . . . "*

QRG #2: VENTILATION CORRECTIVE STEPS (MR. SOPA)	
STEP #1: MASK ADJUSTMENT & REPOSITION HEAD	1. Reapply the mask (consider the two-hand technique) 2. Reposition the head in a neutral or slightly extended position 3. Initiate PPV & assess chest movement & breath sounds
STEP #2: *S*UCTION & *O*PEN AIRWAY	1. Use a bulb syringe or suction catheter to suction mouth then nose 2. Open the mouth & lift the jaw forward 3. Initiate PPV & assess chest movement & breath sounds
STEP #3: PRESSURE INCREASE	1. Increase ventilation pressure in increments of 5 to 10 (max = 40 mmHg) 2. Temporarily occlude BVM pop-off valve (careful about barotrauma) 3. Initiate PPV & assess chest movement & breath sounds
STEP #4: ALTERNATIVE AIRWAY	1. **PCP:** Consider size 1 laryngeal mask airway (LMA) 2. Initiate PPV 3. Assess chest movement & breath sounds

QRG #3: SpO2 DURING INITIAL MINUTES AFTER BIRTH (RIGHT HAND)			
1 min	60 - 65%	4 min	75 - 80%
2 min	65 - 70%	5 min	80 - 85%
3 min	70 - 75%	10 min	85 - 95%

INDICATIONS
• Preterm newborn (less than 36 weeks) • Poor muscle tone • Not crying or breathing • Labored breathing or persistent cyanosis • Bradycardia (HR less than 100 bpm)

CONTRAINDICATIONS

- Newborn known with certainty to be less than 20 weeks gestational age [2]

NOTES

1. Neonatal emergencies are fortunately rare but can be very stressful. Be prepared and call early for assistance or intercept**.** Consult on-line medical support (OLMS) at any time.
2. Unless it can be confirmed that a fetus is less than 20 weeks gestational age or an intrauterine death has already occurred, paramedics must initiate resuscitative efforts (appendix A).
3. Neonatal compromise is most commonly due to apnea or hypoventilation causing hypoxemia. The focus is on effective ventilation of the baby's lungs. The vast majority of newborns will respond to initial basic measures. Some may *briefly* require ventilatory assistance. A few may briefly require chest compressions. Vascular access and epinephrine administration are rarely necessary and usually unattainable in the prehospital setting.
4. In neonatal resuscitation every set of actions should be completed in 30 seconds**.** Every round of PPV or CPR should be performed for 30 seconds (see quick reference guide #1), and the breathing and heart rate is reassessed every 30 seconds.
   - By **30** seconds the airway should be opened and the infant stimulated to breath if required.
   - By **60** seconds positive pressure ventilation (PPV) should be initiated if required.
   - By **90** seconds chest compressions initiated if required.
5. Place the head in the "sniffing" position, using a shoulder role if required. Avoid excessive neck flexion or extension.
6. Suction the mouth before the nose ("M before N") with a bulb syringe. If using a suction catheter, do not exceed 80 to 100 mmHg of negative pressure.
7. In infants less than 32 weeks gently dry (to avoid damaging their fragile skin) and cover the torso and limbs with plastic wrap (to preserve moisture and warmth).
8. Visualizing chest rise and palpation of the umbilical pulse may be difficult in a smaller infant. Auscultation with a stethoscope is the preferred method for assessing both ventilations and heart rate.

   If you cannot hear air entry with your first few ventilations, implement ventilation corrective steps using the mnemonic "MR. SOPA" (see quick reference guide #2).
9. With labored breathing, persistent central cyanosis, or abnormal oxygen saturation (SpO2), administer free-flowing supplemental O_2 at 5 liters per minute, by holding the open end of the oxygen tubing close by the baby's mouth and nose.

   Normal newborn SpO2 increases over about ten minutes after birth (see quick reference guide #3). Measuring at the right hand approximates normal preductal values, and can be used to determine if abnormal SPO2 persists.
10. PPV can be performed without a sealed airway during newborn resuscitation, regardless of the mother's COVID status (A09).
11. When providing PPV without chest compressions, use a O2 flow rate of 5 liters per minute and remove the reservoir (this will deliver about 30 to 35%). Slowly reduce ventilatory support as possible when the HR is greater than 100 bpm.
12. When providing PPV with chest compressions, provide O2 at a flow rate of 10 liters per minute with a reservoir (this will deliver as close to 100% as possible).

13. A newborn may be in hypovolemic shock due to fetal-maternal hemorrhage, placental or umbilical trauma, vasa previa with hemorrhage, or even extensive vaginal bleeding. If not responding to chest compressions and PPV consider establishing intraosseous (IO) access and administering 0.9% (normal) saline at 10 ml/kg over 5 to 10 minutes. If no response, consider a second bolus of 10 ml/kg over 5 to 10 minutes.

LINKS
• A09 - AEROSOL GENERATING MEDICAL PROCEDURES • D02 - PREHOSPITAL DELIVERY

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Caveat that sealed airway is not required for PPV • Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: MISCARRIAGE, STILLBIRTH, & PERINATAL DEATH

Pregnancy dating can be challenging and discrepancies of 1 to 2 weeks can have profound implications for survival. Estimating gestational age (GA) by recall of dates may be inaccurate. Fetal age can most reliably be determined by ultrasound (US) but even that will have some margin of error (up to a week in early pregnancy).

Before 20 weeks a fetus is universally regarded as incapable of survival outside of the womb and delivery before 20 completed weeks is termed a **miscarriage**. Delivery after 20 weeks but before the full gestational term (37 to 38 weeks) is called a **premature birth**.

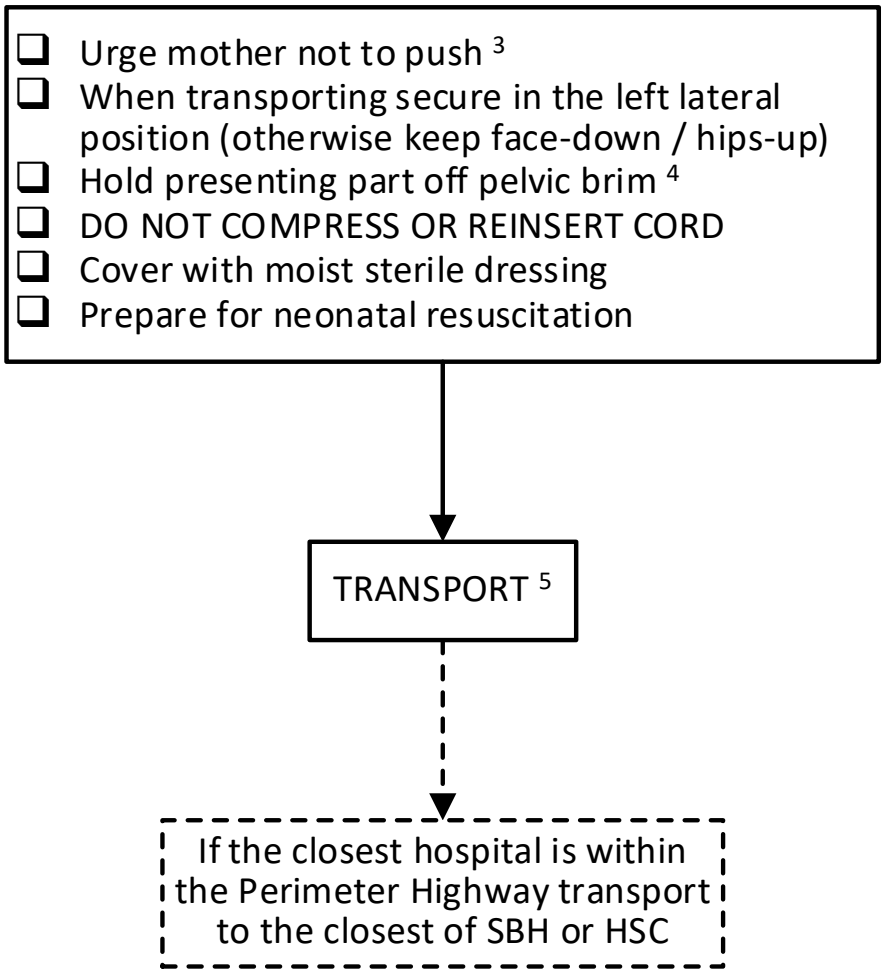
A fetus that delivers at 22 completed weeks *might* survive with immediate resuscitative efforts, and the probability of survival improves with increasing GA. There are a few reports of neonates less than 22 weeks surviving with immediate resuscitative efforts and aggressive post-resuscitation care.

A death that occurs after 20 completed weeks but *before* the onset of labor is called a **stillbirth.** Before 28 weeks it is known as an **early stillbirth**, and after 28 weeks it is referred to as a **late stillbirth**. An early stillbirth will sometimes present with signs of tissue degeneration (or maceration), but this finding may be more subtle or absent in later stillbirths. Other signs commonly associated with stillbirth, such as fused eyelids or translucent skin, are unreliable or difficult for the novice to discern.

Deaths that occurs *during* labor are known as **perinatal deaths.** Some occur during labor (**late fetal death**) and some occur after delivery of a liveborn (**early neonatal death**). Many early neonatal deaths are due to absent or ineffective respirations and can be prevented by prompt initiation of resuscitative measures.

It may be quite challenging to differentiate a premature liveborn with absent vital signs from a stillborn fetus, especially with a late stillbirth. It may be equally as challenging to distinguish late fetal death from a viable neonate without signs of life. **Unless it can be confirmed that the gestational age (GA) is less than 20 weeks or intrauterine death has already occurred, paramedics must consider all neonates viable and initiate resuscitative efforts.**

Shared health Soins communs Manitoba	**D04 - UMBILICAL CORD PROLAPSE**
	MATERNAL & NEWBORN CARE
Version date: 2023-07-10	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: OBSTETRICAL FACILITIES

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INDICATIONS

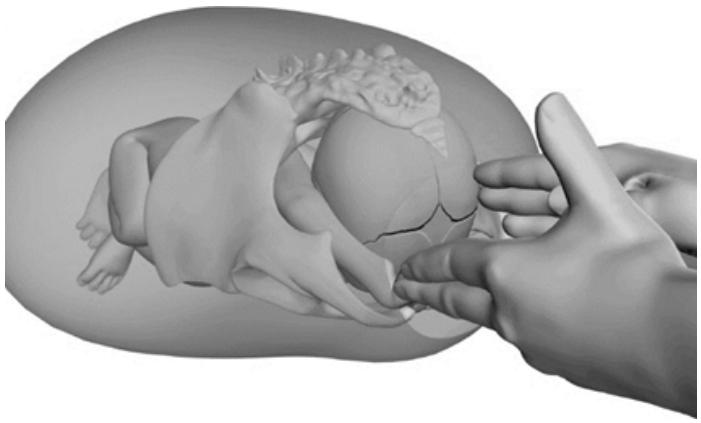
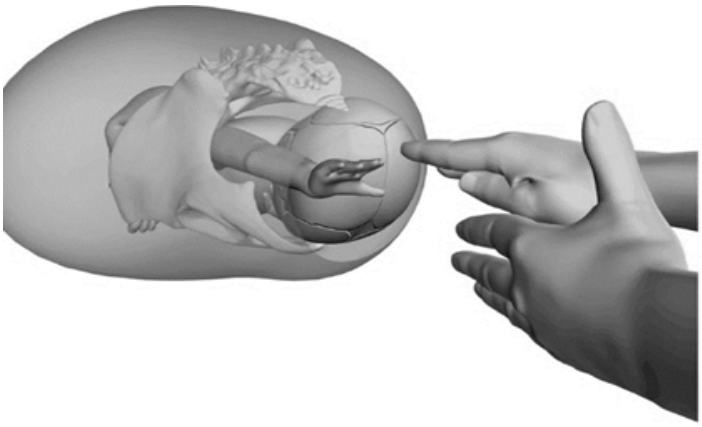
- Known or suspected umbilical cord prolapse during delivery [1]

CONTRAINDICATIONS

- None

NOTES

1. Obstetrical emergencies are fortunately rare but can be very stressful. Be prepared and call early for assistance or intercept. Consult on-line medical support (OLMS) at any time.
2. **Umbilical cord prolapse is a surgical emergency that cannot be treated in the prehospital setting.** Fetal survival is measured in minutes & depends on immediate delivery. It can be obvious where prompt recognition and immediate action can be lifesaving. Or it can be occult and undiscovered until delivery. It commonly accompanies incomplete breech presentations.
3. Pushing can exacerbate cord compression.
4. Manual elevation of the presenting part off of the pelvic brim (figure 1) to prevent cord compression can extend the window for intervention and improve the chances of neurologically intact fetal survival. Be careful not to compress the prolapsed cord.
5. The preferred destination is an obstetrical facility where staff have expertise and resources to manage cord prolapse and experience with neonatal resuscitation (QRG). However, if the transport time is excessive initial care may have to be provided at a non-obstetrical facility. Ensure pre-arrival notification.

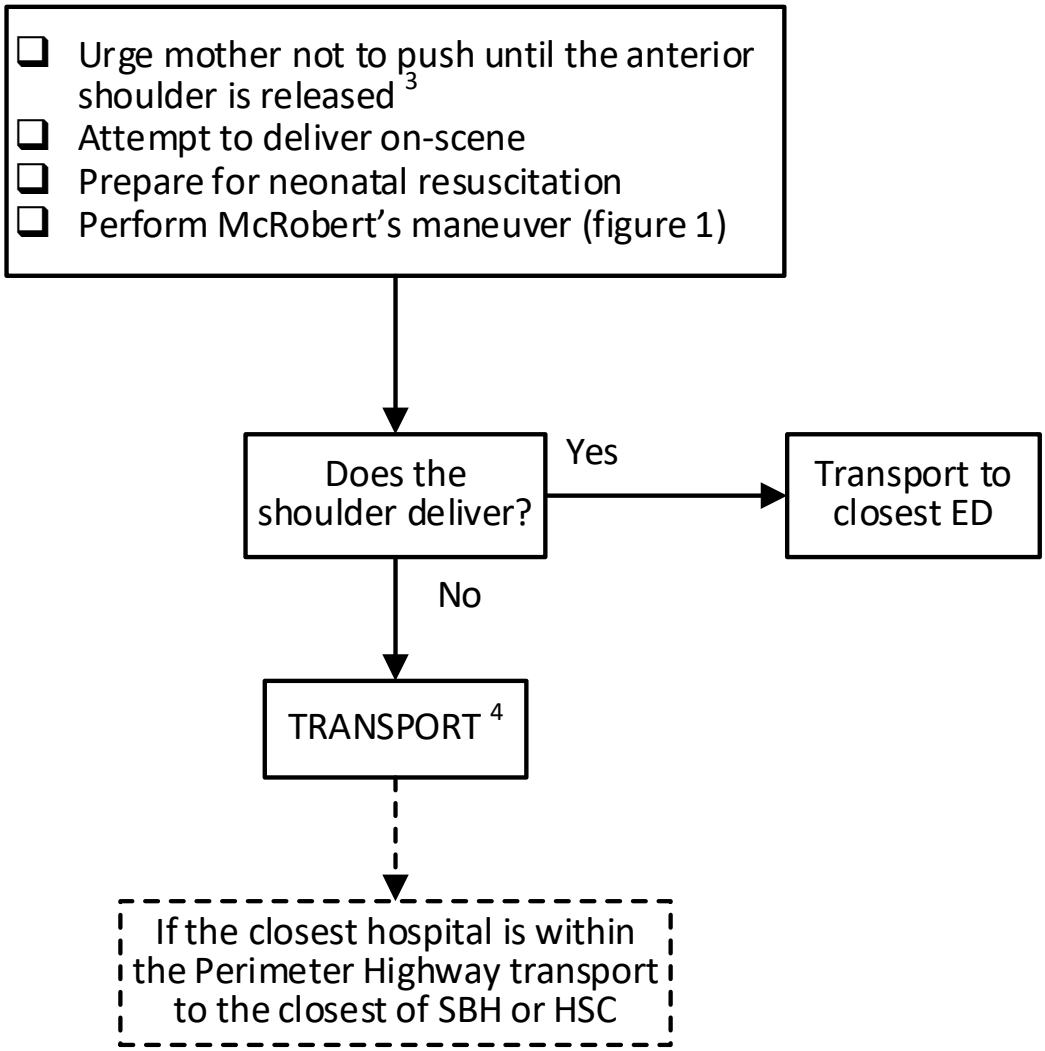
FIGURE 1: MANUAL ELEVATION OF THE PRESENTING PART	
	

LINKS
D03 - NEWBORN CARE & RESUSCITATION D06 - INCOMPLETE BREECH

APPROVED BY	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	**D05 - SHOULDER DYSTOCIA**
	MATERNAL & NEWBORN CARE
Version date: 2023-07-10	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: OBSTETRICAL FACILITIES

(*) Paramedics should call ahead to confirm that normal obstetrical services are currently available.

- Bethesda Regional Health Centre (Steinbach)
- Boundary Trails Health Centre (Winkler)
- Brandon Regional Hospital
- Dauphin Regional Health Centre
- Health Sciences Centre (Winnipeg)
- Lake of the Woods District Hospital (Kenora, ON) *
- Neepawa Health Centre
- Portage District General Hospital (Portage La Prairie)
- Selkirk Regional Health Centre (Selkirk)
- St. Anthony's General Hospital (The Pas)
- St. Boniface Hospital (Winnipeg)
- Thompson General Hospital
- Yorkton Regional Health Centre (Yorkton, SK) *

INDICATIONS

- Known or suspected shoulder dystocia during delivery [2]

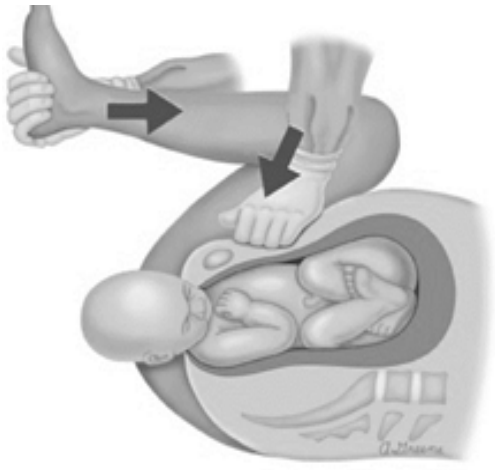
CONTRAINDICATIONS

- None

NOTES

1. Obstetrical emergencies are fortunately rare but can be very stressful. Be prepared and call early for assistance or intercept. Consult on-line medical support (OLMS).
2. Shoulder dystocia is a clinical diagnosis that should be suspected when any of the following occurs:
   a. The fetal body fails to deliver within 60 seconds of the head delivering (normally this takes under 30 seconds).
   b. The fetal head is expulsed during a contraction, but then retracts into the perineum between compressions (turtle sign).
   c. The usual gentle downward traction on the fetal head fails to accomplish delivery of the shoulders.

2. Delivery will not complete until the anterior shoulder is released from behind the pubic symphysis. Pushing by the mother, excessive traction on the fetus, or fundal pressure may worsen dystocia by wedging the shoulder against the maternal pelvis.
3. If unable to deliver with the McRobert's procedure, the preferred destination is an obstetrical facility where staff have expertise and resources to manage shoulder dystocia and experience with neonatal resuscitation (QRG). However, if the transport time is excessive initial care may have to be provided at a non-obstetrical facility. Ensure pre-arrival notification.
4. Paramedics with advanced care paramedic (ACP) registration, prior training, and competency *may* be able to deliver the posterior arm (appendix A) or shoulder (appendix B) with a delegation from and direct supervision by OLMS. This may be life saving for the fetus.
5. Clavicular or humeral fractures can occur (20%) but generally heal without compromise in function.

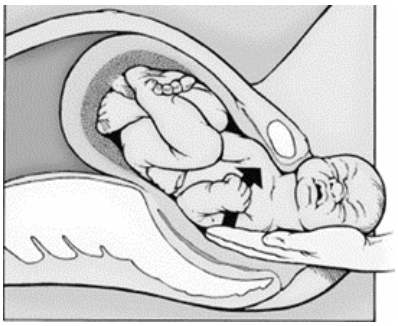
FIGURE 1 - McROBERT'S MANEUVER
 This is best accomplished by two or more providers. Step #1: **Flex the maternal hips well back onto the abdomen to achieve a "knees-to-chest" position.** This improves pushing efficiency and will often relive shoulder dystocia by rotating the maternal symphysis up over the fetal shoulder and flattening the sacrum. Step #2: **Apply suprapubic pressure with the palm of your hand directing the anterior shoulder down and laterally.** This will bring the shoulders into an oblique plane, which is the widest diameter of the pelvis. Avoid fundal pressure as this will force the anterior shoulder further under the pubic symphysis. Step #3: **Provide gentle in-line traction on the fetal head.** Excessive traction will force the shoulder against the symphysis and may cause fetal injury. After release of the shoulder, normal traction should allow delivery.

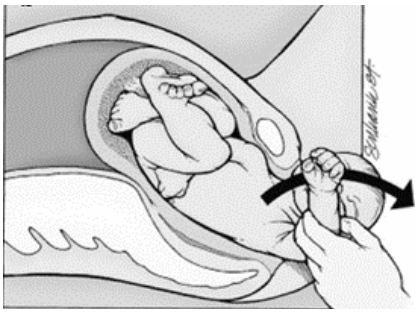
LINKS
D03 - NEWBORN CARE & RESUSCITATION

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

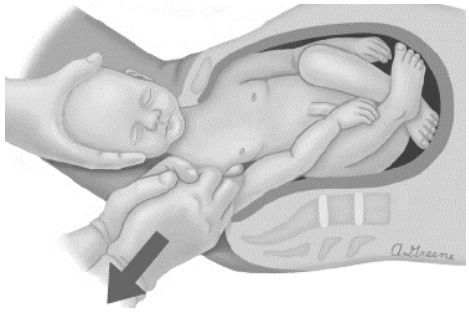
APPENDIX A - DELIVERY OF THE POSTERIOR ARM





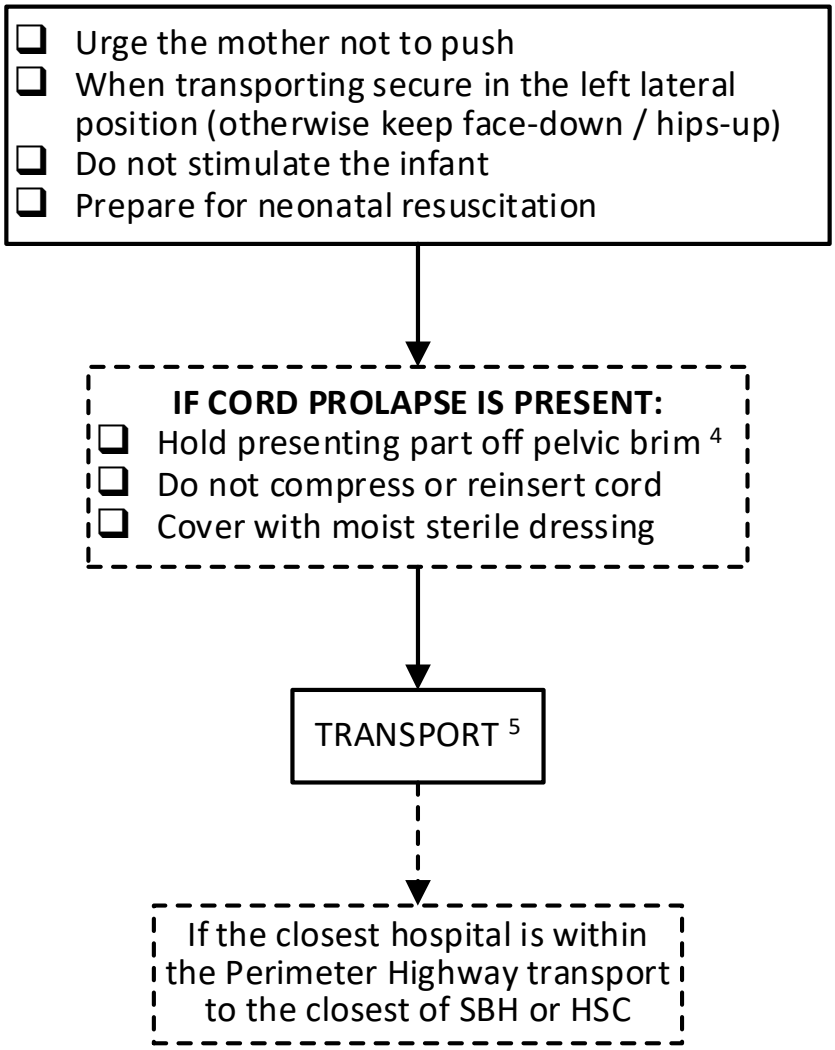
1. Place one hand into the vagina along the posterior arm.
2. Grasp the forearm or elbow.
3. Ensure the elbow is flexed.
4. Sweep the arm across and up the fetal chest.
5. Deliver the posterior arm and shoulder. This should allow the anterior shoulder to slip out from under the maternal symphysis pubis.
6. If unable to reach the arm because it remains above the pelvic brim, it may be possible to deliver the posterior shoulder by axillary traction (appendix B).

APPENDIX B - AXILLARY TRACTION FOR DELIVERY OF THE POSTERIOR SHOULDER



1. Have another provider gently flex the fetal head towards the anterior shoulder.
2. Overlap the middle fingers of each hand in the posterior fetal axilla.
3. Pull the posterior shoulder downward along the curve of the maternal sacrum and then out.
4. The posterior arm can then be delivered.

Shared health Soins communs Manitoba	**D06 - INCOMPLETE BREECH OR HAND PRESENTATION**
	MATERNAL & NEWBORN CARE
Version date: 2023-07-10	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICPO	**ICP:** ICPonly	None - All providers

QRG: OBSTETRICAL FACILITIES

(*) Paramedics should call ahead to confirm that normal obstetrical services are currently available.

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- St. Boniface Hospital (Winnipeg)
- Thompson General Hospital
- Yorkton Regional Health Centre (Yorkton, SK) *

INDICATIONS

- Incomplete breech presentation during delivery

CONTRAINDICATIONS

- None

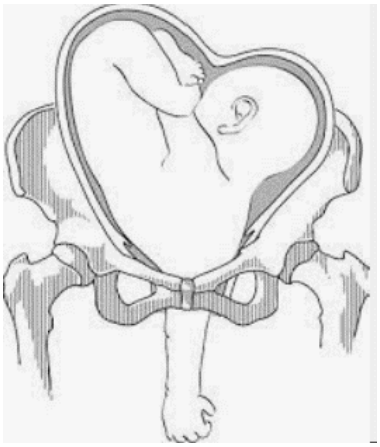
NOTES

1. Obstetrical emergencies are fortunately rare but can be very stressful. Be prepared and call early for assistance or intercept. Consult on-line medical support (OLMS) at any time.
2. **An incomplete breech or hand presentation is an obstetrical emergency that cannot be treated in the prehospital setting.** Fetal survival depends on immediate surgical delivery and is measured in minutes. On-scene time should be kept to an absolute minimum.
3. Breech presentation occurs in approximately three percent of all deliveries. About 1 in 4 are incomplete, either *footling* with extension of the hip(s) and knee(s) or *kneeling* with extension of the hip(s) and flexion of the knee(s) (appendix A). Hand presentation has approximately a 0.5% incidence (appendix A).
4. Umbilical cord prolapse commonly accompanies an incomplete breech**.** Manual elevation of the presenting part off of the pelvic brim to prevent cord compression can extend the window for intervention and improve the chances of neurologically intact fetal survival.
5. The preferred destination is an obstetrical facility (QRG) where staff have expertise and resources to manage breech or hand presentation and experience with neonatal resuscitation. However, if the transport time is excessive initial care may have to be provided at a non-obstetrical facility. Ensure pre-arrival notification**.**

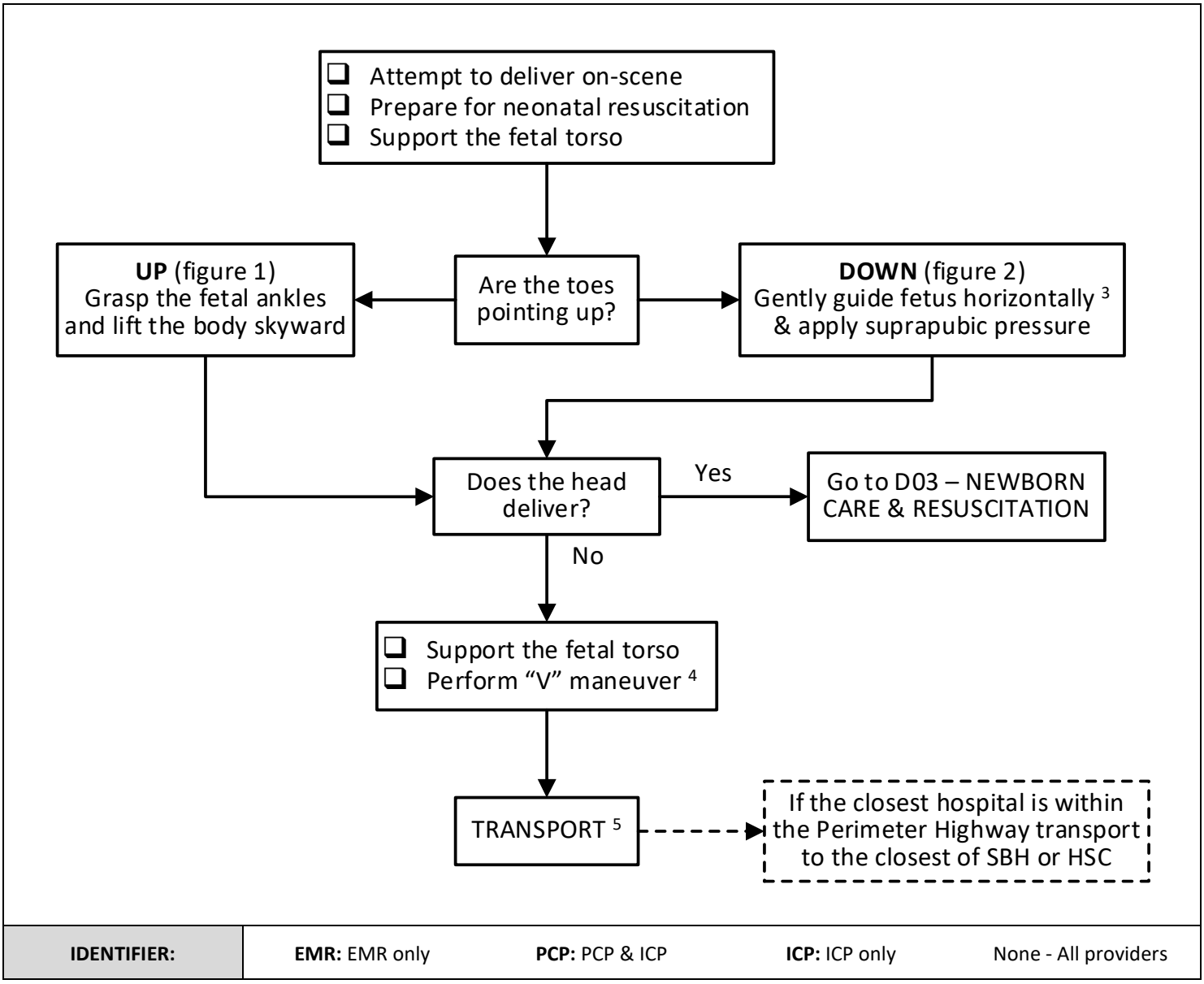
LINKS
D03 - NEWBORN CARE & RESUSCITATION D04 - UMBILICAL CORD PROPLAPSE

APPROVED BY	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A:		
FOOTLING BREECH	**KNEELING BREECH**	**HAND**
		

Shared health Soins communs Manitoba	**D07 - FRANK OR COMPLETE BREECH PRESENTATION**
	MATERNAL & NEWBORN CARE
Version date: 2023-07-11	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: OBSTETRICAL FACILITIES

(*) Paramedics should call ahead to confirm that normal obstetrical services are currently available.

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- Thompson General Hospital
- Yorkton Regional Health Centre (Yorkton, SK) *

INDICATIONS

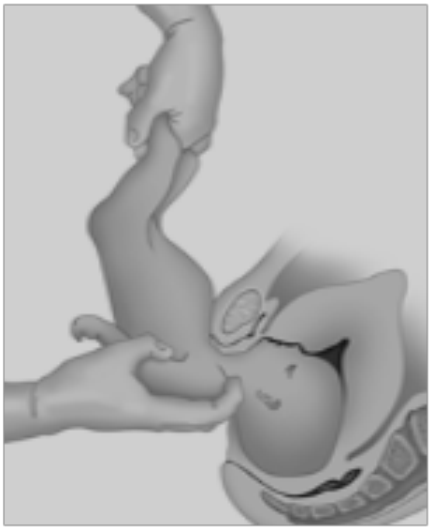
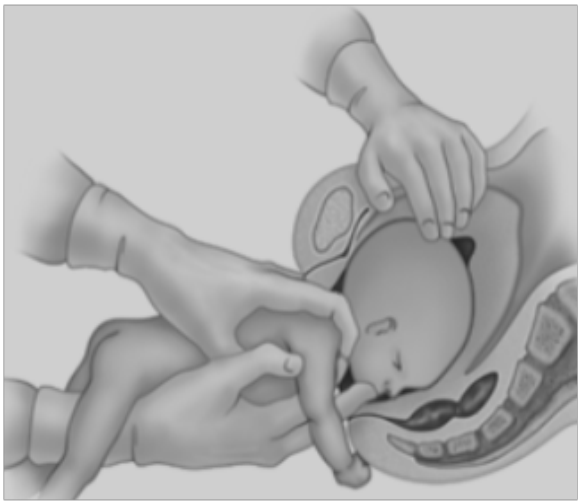
- Complete breech presentation during delivery

CONTRAINDICATIONS

- None

NOTES

1. Obstetrical emergencies are fortunately rare but can be very stressful. Be prepared and call early for assistance or intercept. Consult on-line medical support (OLMS) at any time.
2. Breech presentation occurs in approximately three percent of all deliveries. About 60 percent are frank breeches where the hips are flexed and the knees extended while ten percent are complete where the hips and knees are both flexed (appendix A). Most can be delivered vaginally.
3. Lifting the body upwards may cause hyperextension of the neck possibly resulting in spinal cord injury.
4. Place your hand into the vagina between the vaginal wall and fetal face, and cup your hand over the nose and mouth to prevent obstruction.
5. If unable to deliver on scene, the preferred destination is an obstetrical facility where staff have expertise and resources to manage breech deliver and experience with neonatal resuscitation (QRG). However, if the transport time is excessive initial care may have to be provided at a non-obstetrical facility. Ensure pre-arrival notification.

FIGURE 1: TOES POINTING UP	FIGURE 2: TOES POINTING DOWN
	

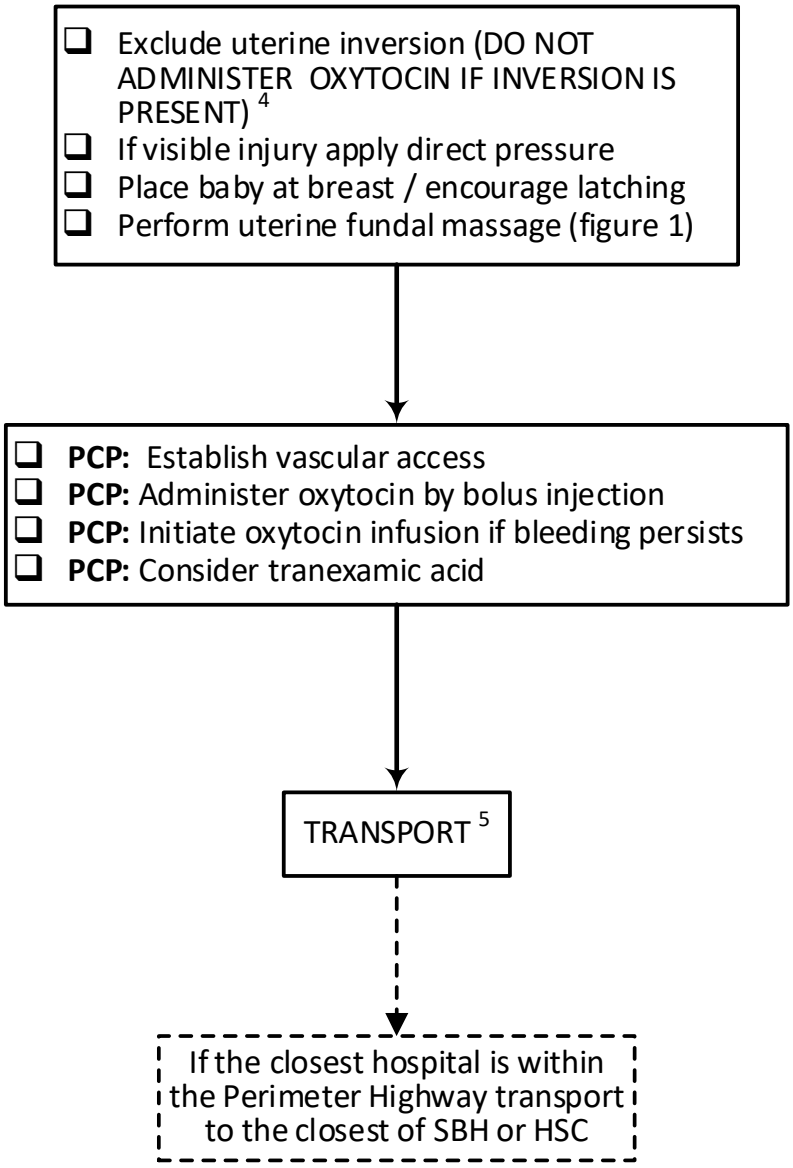
LINKS
D03 - NEWBORN CARE & RESUSCITATION

APPROVED BY	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A:	
FRANK BREECH 	**COMPLETE BREECH** 

Shared health Soins communs Manitoba	**D08 - POSTPARTUM HEMORRHAGE**
	MATERNAL & NEWBORN CARE
Version date: 2023-07-11	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: OBSTETRICAL FACILITIES

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INDICATIONS

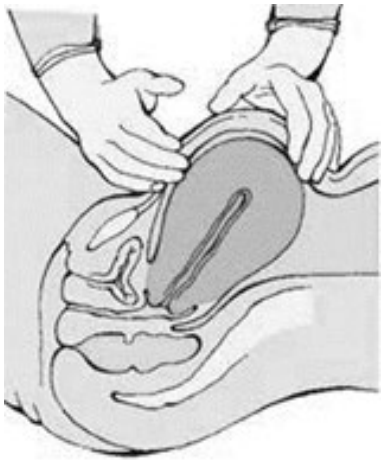
- Significant bleeding after delivery of the placenta [2]

CONTRAINDICATIONS

- None

NOTES

1. Obstetrical emergencies are fortunately rare but can be very stressful. Be prepared and call early for assistance or intercept. Consult on-line medical support (OLMS) at any time.
2. Normal estimated blood loss (EBL) at delivery is less than 500 ml. Post-partum hemorrhage (PPH) should be suspected when bleeding is estimated to be greater than this and/or signs and symptoms of hypovolemia are present after delivery.
3. PPH is most commonly due to poor uterine tone, which usually responds to oxytocin administration and fundal massage (figure 1). Other causes include placental retention, trauma to the genital tract or rectum, uterine rupture, and uterine inversion.
4. Uterine inversion is a rare but life-threatening obstetrical emergency. Exsanguinating hemorrhage can occur. It may be caused by excessive cord traction and fundal pressure. Clinically it will present as a bloody tissue mass filling or protruding from the vagina. Oxytocin & fundal massage are contraindicated with inversion.
5. The preferred destination is an obstetrical facility where staff will have expertise and resources to manage PPH (QRG). However, if the transport time is excessive initial care may have to be provided at a non-obstetrical facility. Ensure pre-arrival notification.

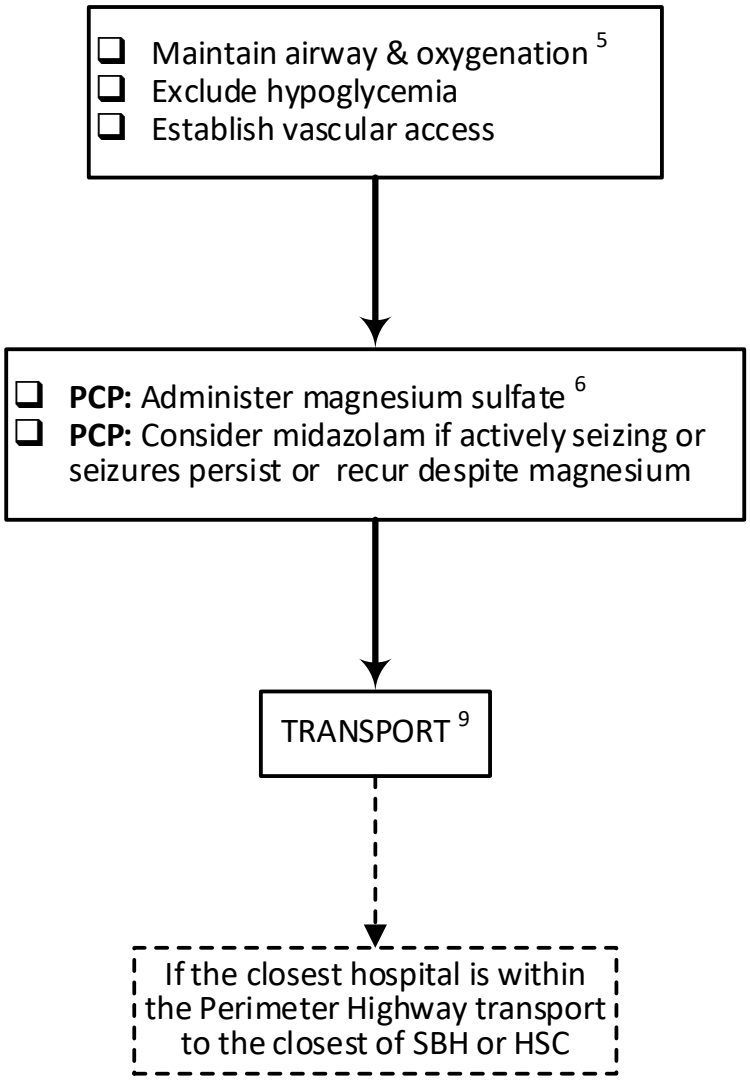
FIGURE 1: UTERINE FUNDAL MASSAGE
   • Fundal massage will stimulate the atonic uterus to contract.   • Massage should be maintained while vascular access is being obtained and oxytocin administered.   • Continue until the uterus remains firm and bleeding stops.

LINKS
M16 - OXYTOCIN M28 - TRANEXAMIC ACID

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	**D09 - PREECLAMPSIA & ECLAMPSIA**
	MATERNAL & NEWBORN CARE
Version date: 2023-07-11	Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR only	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: OBSTETRICAL FACILITIES

(*) Paramedics should call ahead to confirm that normal obstetrical services are currently available.

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- Yorkton Regional Health Centre (Yorkton, SK) *

QRG: MAGNESIUM SULFATE DOSING [7]

PREECLAMPSIA	ECLAMPSIA TREATMENT / RECURRENT SEIZURE(S)	
	NO PRIOR PROPHYLAXIS	**PRIOR PROPHYLAXIS**
SEIZURE PROPHYLAXIS • 4 gm over 15 min	• 4 gm over 10 min • Repeat 2 gm over 5 min up to twice if seizures persist or recur	• 2 gm over 5 min • Repeat 2 gm over 5 min once if seizures persist or recur

INDICATIONS

- Known or suspected preeclampsia or eclampsia

CONTRAINDICATIONS

- Signs of magnesium toxicity [7]

NOTES

1. Obstetrical emergencies are fortunately rare but can be very stressful. Be prepared and call early for assistance or intercept. Consult on-line medical support (OLMS) at any time.
2. For the purposes of this care map, **preeclampsia** will be assumed on the basis of one or more of the following.
   - Severe hypertension
   - Systolic blood pressure > 160 mmHg on two readings
   - Diastolic blood pressure > 110 mmHg on two readings
   - Severe headache or visual disturbance (eg. photopsia, scotomata; blindness)
   - Severe and persistent epigastric or right upper quadrant abdominal pain

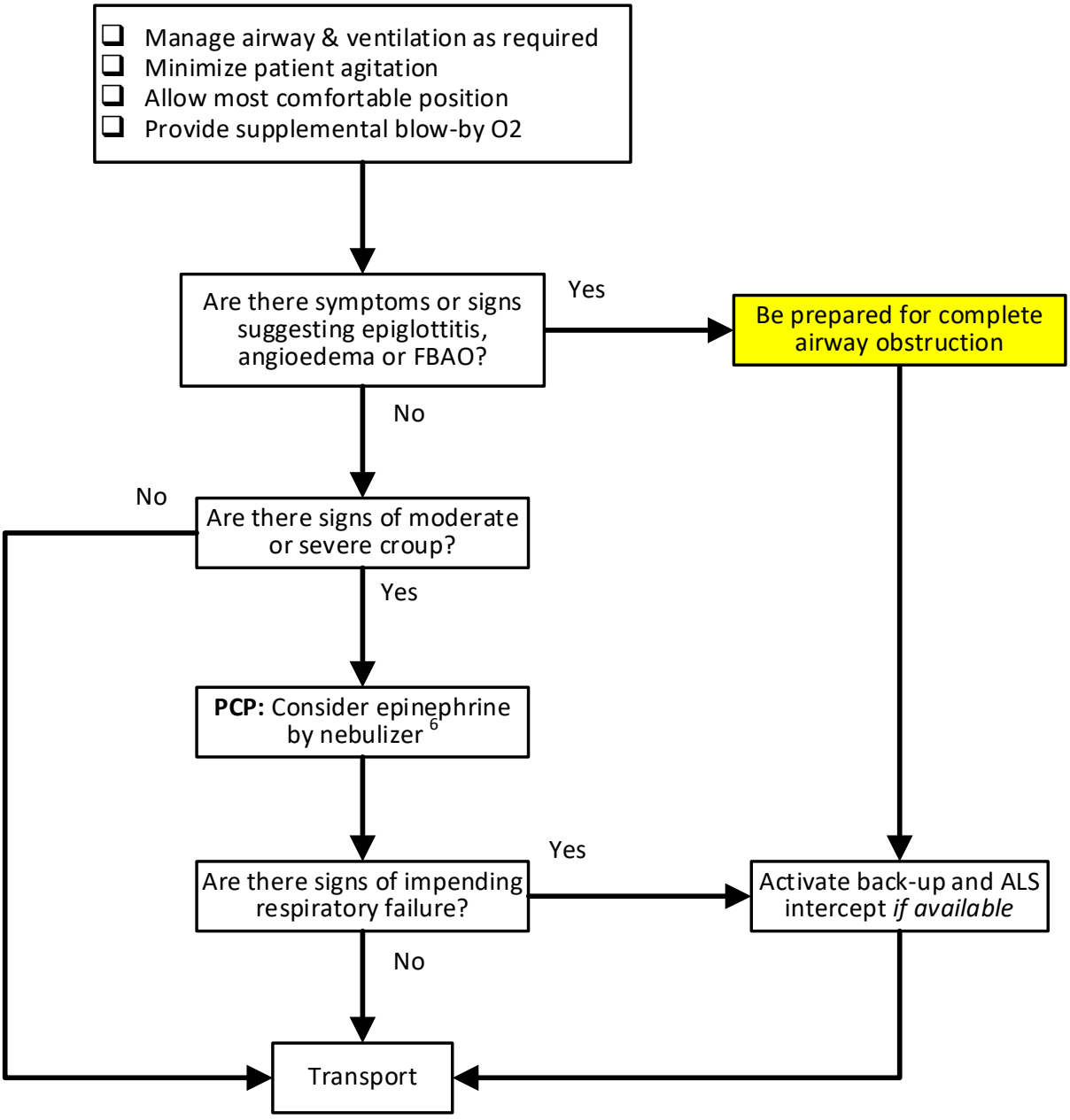
3. For the purposes of this care map, **eclampsia** will be assumed based on the occurrence of new onset seizures in the absence of other causative conditions (eg. hypoglycemia, head trauma, epilepsy, stroke) even without pre-existing eclampsia.
4. Pre-eclampsia and eclampsia can occur at any time between 20 weeks gestation and up to 6 weeks post-partum.
5. Due to profound anatomic and physiologic changes, **managing the airway and ensuring adequate ventilation can be extremely difficult in near term pregnant patients**. Monitor airway and respiratory function closely after midazolam and/or magnesium administration.
6. Magnesium sulfate is the treatment of choice for the treatment of *eclamptic seizures.* Midazolam in conjunction with magnesium may cause respiratory muscle weakness and hypoventilation and should be used with caution.
7. Magnesium doses in excess of 8 grams in an hour may result in magnesium toxicity**.** Loss of deep tendon reflexes is the first sign of *magnesium toxicity.* Other manifestations include slurred speech, decreased level of consciousness, decreased muscle tone, and hypoventilation. Calcium gluconate or calcium chloride may be given to counteract magnesium toxicity. Hyporeflexia or respirations less than 12 per minute are contraindications to giving further magnesium sulfate.
8. If delivery occurs, there is a high probability of newborn compromise due to asphyxia. Be prepared to provide newborn resuscitation.
9. The preferred destination is an obstetrical facility where staff will have expertise and resources to manage eclampsia (QRG). However, if the transport time is excessive initial care may have to be provided at a non-obstetrical facility. Ensure pre-arrival notification.

LINKS
D03 - NEWBORN CARE & RESUSCITATION M24 - MAGNESIUM SULFATE M26 - CALCIUM CHLORIDE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X04 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	**E01 - CROUP**	
	Infant & child	MEDICAL
Version date: 2023-08-05		Effective date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: NEBULIZED EPINEPHRINE (1 mg/ml)	
❑ Dose: 0.5 ml/kg (up to max 5 ml) ❑ Add sterile saline up to 5 ml ❑ Nebulize over 15 min ❑ Repeat once in 2 hours if necessary	This guide is for dosing only. Refer to the medication documents for additional information required for safe administration.

INDICATIONS

- Any infant or child with known or suspected croup

CONTRAINDICATIONS

- Stridor known or suspected to be due to epiglottitis, angioedema, or a foreign body airway obstruction (FBAO)

NOTES

1. Croup is the clinical manifestation of viral laryngotracheobronchitis. It is uncommon over 6 years of age.
2. If there is any suspicion of epiglottitis (appendix A), angioedema, or foreign body airway obstruction (FBAO) minimize on-scene time and any unnecessary interventions, activate backup or ALS intercept if available, and transport emergently to the closest emergency department (ED).
3. In infants and small children, stridor and retractions may be minimal at rest but increased with exertion or agitation as increased airflow turbulence will worsen upper airway resistance.

   Agitation may be minimized by having parents or caregivers assist in administering supplemental oxygen or medication using the blow-by technique.
4. **Croup symptoms and signs may decrease as airway obstruction worsens and airflow decreases.** Stridor may become less audible and retractions may decrease due to weakening of respiratory effort (appendix B).

   Signs of *impending* respiratory failure include cyanosis or pallor and decreasing level of consciousness.
5. Mild croup responds well to the inhalation of cool or humidified air. If there are signs of moderate or severe croup, administer L-epinephrine.
6. During the COVID pandemic paramedics must wear extended personal protective equipment (PPE) when administering epinephrine by nebulizer. Although nebulization is an aerosol-generating medical procedure (AGMP) uncontrolled coughing by the child is a greater risk. COVID-19 and its

LINKS
M05.4 - EPINEPHRINE FOR CROUP

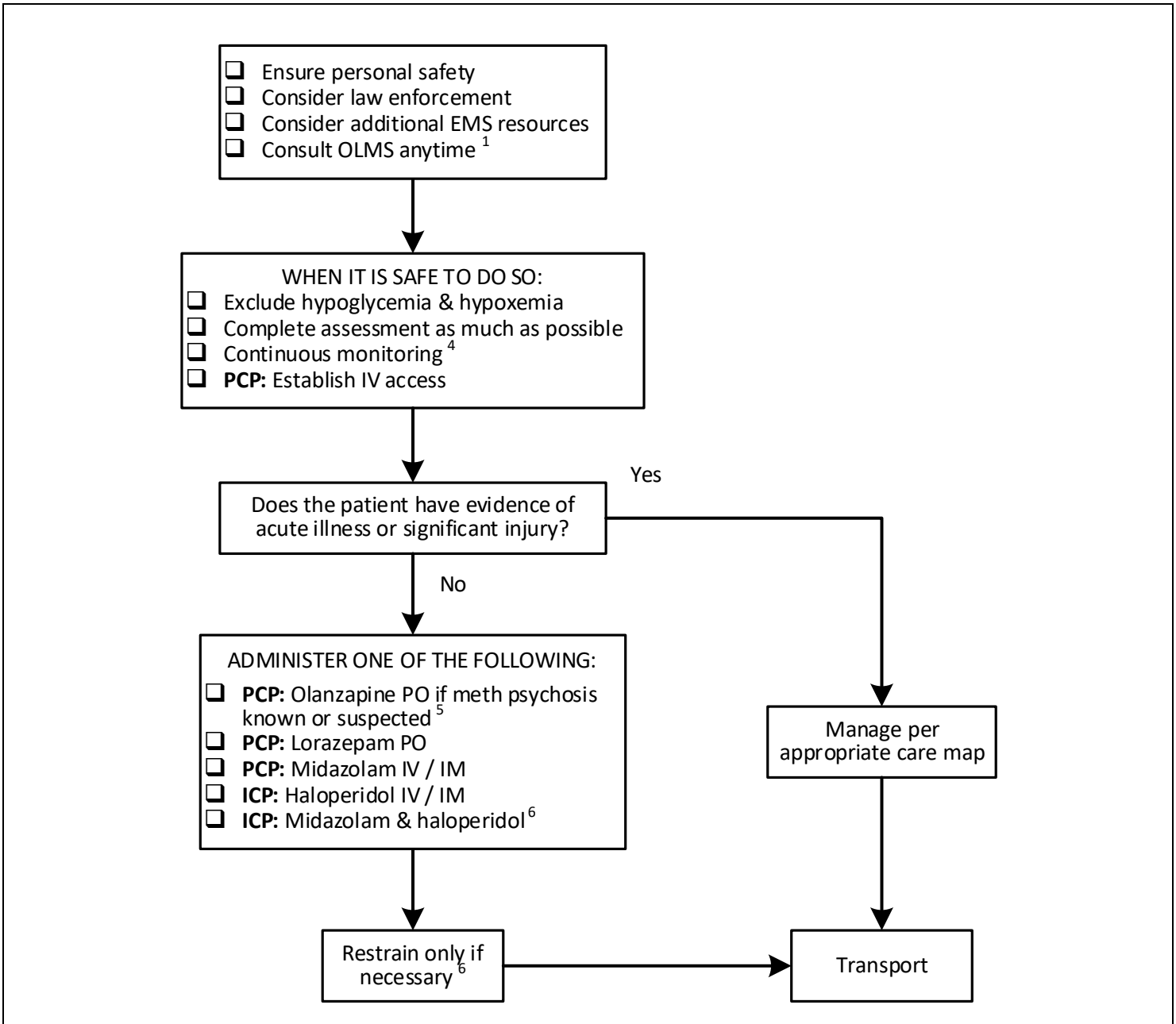
APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X05 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A - CLINICAL DIFFERENTIATION OF CROUP FROM EPIGLOTTITIS		
	EPIGLOTTITIS	**CROUP**
Age	Two years & older	Up to three years
Onset	Usually sudden	Slower onset
General appearance	Toxic / unwell	Relatively well
Fever	High	Mild to moderate
Cough and coryza	Minimal or absent	Usually present
Stridor	Usually severe	Mild to moderate
Speech	Muffled	Hoarse
Secretions	Drooling, unable to swallow	Able to swallow

APPENDIX B - CROUP SEVERITY [2, 3, 4]						
	LOC	**COUGH**	**RESTING STRIDOR**	**AIR ENTRY**	**RETRACTIONS**	**CYANOSIS**
MILD	Normal	Occasional	None	Normal	None	None
MODERATE	Normal	Frequent	Mild	Normal	Mild	None
SEVERE	Agitated	Decreased	Severe	Decreased	Severe	None
RESP FAILURE	Decreased	Decreased	Decreased	Decreased	Decreased	Present

Shared health Soins communs Manitoba	**E02 - AGITATION**	
	Adult & adolescent	MEDICAL
Version date: 2023-10-17		Effective date: 2023-10-24 (0700 hrs)



IDENTIFIER:	**EMR:** EMR	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS

- Agitation or combative behavior where the patient cannot be properly assessed, treated, or transported &/or provider, patient, and public safety are at risk

CONTRAINDICATIONS

- Not applicable

NOTES

1. Agitated patients, especially those who require physical and/or chemical restraint can be difficult to manage and are at high risk of rapid deterioration and death. Consult on-line medical support (OLMS) at any time.
2. Whenever *possible*, verbal de-escalation and redirection is preferred over chemical or physical restraint.
3. Two of the most common causes of agitation are **stimulant ingestion** (cocaine, amphetamines, and phencyclidine) and **withdrawal** from various suppressants (alcohol, benzodiazepines, and barbiturates). Patients in withdrawal from these agents can quickly progress to seizures and cardiovascular instability.
4. In all patients, perform continuous monitoring to the fullest extent possible. **Monitoring respirations is essential after administration of any sedative**. Pulse oximetry, cardiac monitor, capnometry and frequent blood pressure measurements should be established as soon as the patient's state allows. Be prepared to manage the airway and breathing.
5. **METH PSYCHOSIS:** Amphetamine-type stimulants, such as methamphetamine, can cause an acute psychosis in up to one-third of users. Symptoms consist of agitation, paranoia, and hallucinations. Findings may include dilated pupils, abnormal vital signs (fever, tachycardia, hypertension), and excessive pacing and talking. Patients can deteriorate rapidly and seizures can occur. It may last for several days post-ingestion and can recur during periods of abstinence.

   It may be accompanied by the rapid development of extreme paranoia, and extremely violent behavior with enhanced physical strength.

   Early administration of olanzapine may lessen the severity and duration of psychosis. After the onset of the psychosis, voluntary medication administration may be difficult.
6. Physical restraint must be applied in accordance with the local Regional Health Authority (RHA) policy or Shared Health policy and protocol.

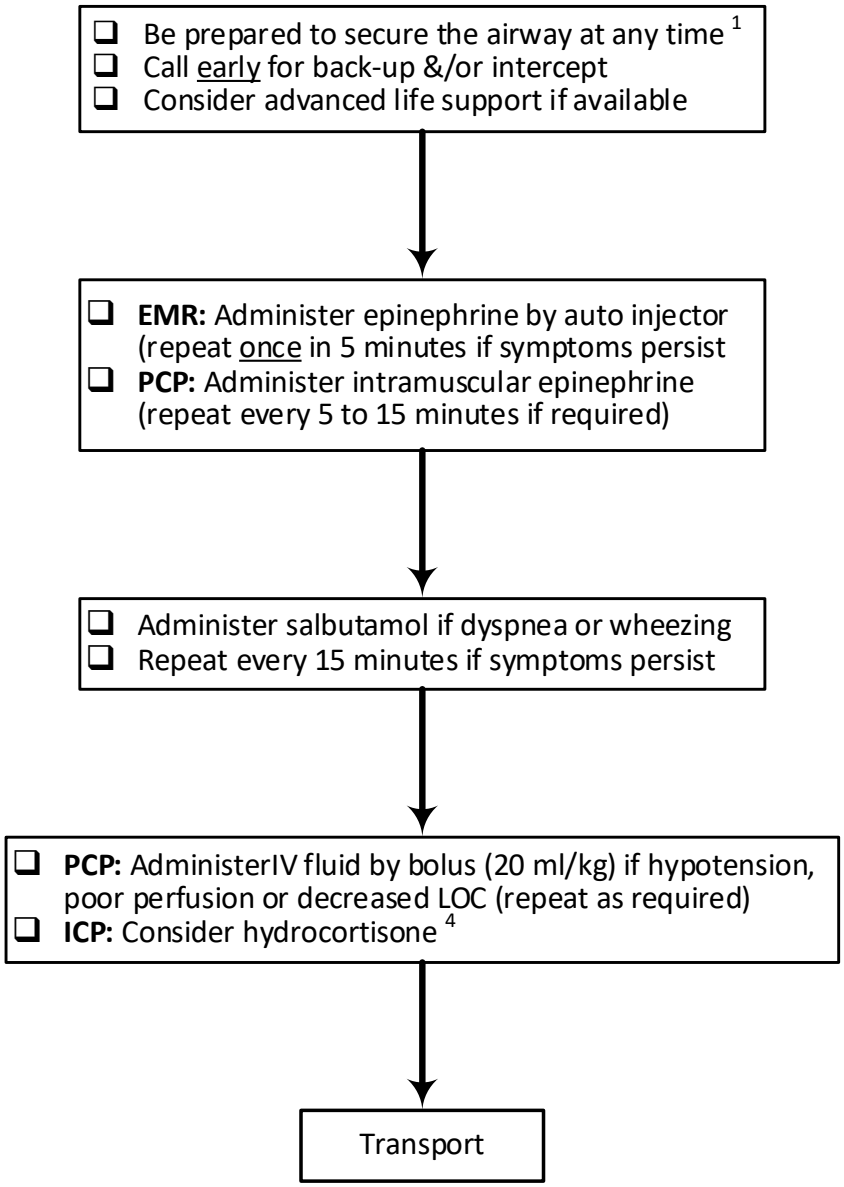
LINKS

M07.1 - MIDAZOLAM
M07.5 - LORAZEPAM
M34 - HALOPERIDOL
M22 - OLANZAPINE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X05 for change tracking)
• Correction of link for M34 - Haloperidol • Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	**E03 - ANAPHYLAXIS**	
	All ages	MEDICAL
Version date: 2023-08-06		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

QRG: INTRAMUSCULAR EPINEPHRINE DOSING (1 mg/ml concentration)

This quick reference guide (QRG) is for dosing only. Refer to the medication documents for additional information required for safe administration.

WEIGHT (kg)	EPINEPHRINE (mg)	AUTOINJECTOR	
5 to 10	0.1	6 years & older	**Epi-Pen**
11 to 15	0.15	Up to 6 years	**Epi-Pen JR**
16 to 20	0.2	**If Epi-Pen Jr is not available, use adult Epi-Pen.**	
21 to 25	0.25	 0.3 mg 0.15 mg	
26 to 30	0.3		
31 to 35	0.35		
36 to 40	0.4		
41 to 45	0.45		
> 45	0.5		

INDICATIONS

- Known or suspected anaphylaxis [4]

CONTRAINDICATIONS

- Not applicable

NOTES

1. Angioedema of the upper airway can progress within seconds, even as other symptoms such as wheezing or hives appear to be stable or improving. Monitor continuously for signs of developing airway obstruction.
2. In a patient with a known exposure to an allergen that has previously caused anaphylaxis, paramedics should administer epinephrine, monitor closely and transport promptly, even in the absence of symptoms or signs.
3. **Epinephrine is first-line treatment for anaphylaxis and prompt administration is essential**. Delayed epinephrine administration is associated with death from anaphylaxis.
4. The onset of action of corticosteroids takes several hours. It is unclear if they prevent a biphasic or protracted reaction, but limited evidence suggests they may be of benefit in patients with severe symptoms or those with known asthma or significant bronchospasm.

   Physician assessment may be delayed due to prolonged transport duration, offload delays, or physician availability. If medical care will be delayed, paramedics may administer hydrocortisone after evaluating the risks versus benefits based on the patient's condition and anticipated length of delay.

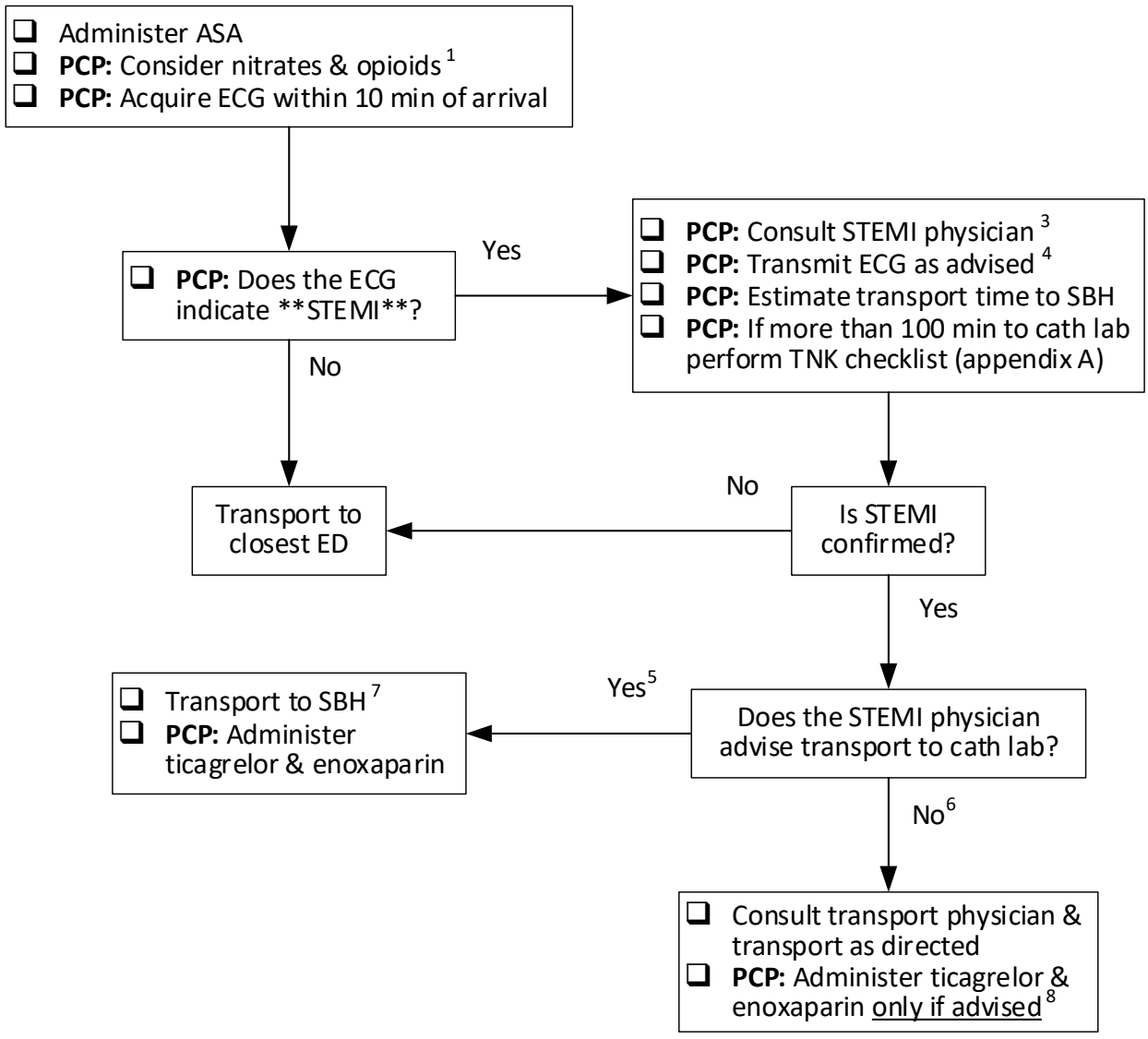
5. There is scant evidence to support the use of either H1 or H2 blocking agents and they may mask a biphasic reaction. Diphenhydramine should never be administered as sole therapy for anaphylaxis.

LINKS
M05.1 - EPINEPHRINE FOR ANAPHYLAXIS M13 - HYDROCORTISONE M15 - SALBUTAMOL

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X05 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	E04 - ACUTE CORONARY SYNDROME & STEMI	
	17 years & older	MEDICAL
Version date: 2023-11-27		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• Chest discomfort, pain, pressure, or heaviness; and / or other symptoms consistent with or suspicious for an acute coronary syndrome (ACS)

CONTRAINDICATIONS
• Not applicable

NOTES

1. Patients with right ventricular infarction (RVI) may be sensitive to right ventricular filling to maintain adequate cardiac output. Use nitrates and opioids with caution. If hypotension develops, hold / discontinue medications, and administer boluses of intravenous crystalloid solution (repeat as required).
2. The Zoll X-series monitor can determine the presence of ST-segment elevation myocardial infarction (STEMI) with a high degree of accuracy and will indicate ****STEMI**** on the automated interpretation.
3. Contact the Medical Transportation Coordination Center (MTCC) to determine who is the on-call **Code-STEMI physician** that day, regardless of your geographic location. Then, contact the STEMI physician directly.

   Communication with the STEMI physician should include the patient's name, age, and gender; time of symptom onset; relevant medical history, medications, and allergies; current vital signs and relevant physical findings; and estimated transport time to the cath lab at St. Boniface Hospital (SBH), and any contraindications to tenectaplase (appendix A).
4. When transmitting an ECG obscure or cover the patient's identifying data.
5. If the STEMI physician confirms the diagnosis and the patient can arrive at the cath lab within 100 minutes of EMS arrival, they will pre-alert the cath lab, direct transport to SBH, and authorize administration of antithrombotic therapy (enoxaparin & ticagrelor).
6. If the STEMI physician confirms the diagnosis but the patient cannot arrive at the cath lab within 100 minutes, contact MTCC and request to speak to the **Provincial transport physician** regardless of your geographic location.

   The STEMI physician will determine the reperfusion plan, while the transport physician will determine the transport strategy (including possible air intercept).

   - The STEMI physician may direct transport directly to SBH, even beyond the 100-minute window. The transport physician will determine if air intercept will save time.
   - The STEMI physician may direct transport to a local emergency department for fibrinolysis, followed by interfacility transport (IFT) to the cath lab. Paramedics will remain with the patient until released by the transport physician.
7. If the patient is stable on arrival at SBH proceed directly to the cath lab unless otherwise advised. If they are unstable, go to the ED first. Ensure appropriate pre-arrival notification of receiving ED staff.
8. Ticagrelor and enoxaparin are contraindicated before tenectaplase (TNK). Do not administer if TNK is being considered.

9. If the patient becomes unstable during transport, such as a rhythm disturbance or hemodynamic compromise, contact VECTRS and continue / redirect advised.

LINKS	
M03.1 - MORPHINE	M37.1 - ASA
M03.2 - FENTANYL	M37.2 - TICAGRELOR
M21 - NITROGLYCERIN	M43 - ENOXAPARIN

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

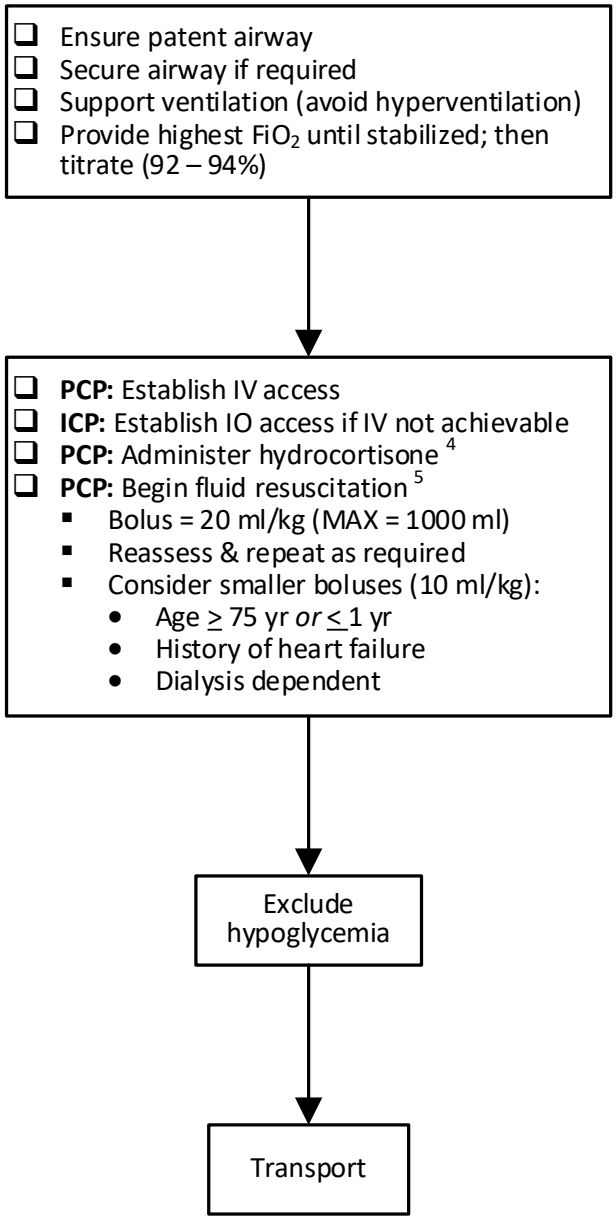
VERSION CHANGES (refer to X05 for change tracking)
• TNK checklist should be performed earlier while waiting for the Code-STEMI physician • Modified flow chart • Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: CHERCKLIST FOR FIBRINOLYSIS WITH TENECTAPLASE (TNK)

Inform the STEMI MD if the patient has / had any of the following.

- ☐ Current use of anticoagulant
- ☐ Active internal bleeding (excluding menses)
- ☐ Ischemic stroke within the last 3 months
- ☐ Prior intracranial hemorrhage
- ☐ Intracranial or intraspinal surgery or trauma within the last 2 months
- ☐ Major closed head or facial trauma within the last 3 months
- ☐ Intracranial neoplasm / tumor, arteriovenous malformation, or aneurysm
- ☐ Severe uncontrolled hypertension (any systolic BP greater than 180 mmHg during this encounter)
- ☐ Bleeding disorder
- ☐ Traumatic or prolonged (more than 10 minutes) CPR
- ☐ Suspected aortic dissection

Shared health Soins communs Manitoba	**E05 - ADRENAL CRISIS**	
	All ages	RESUSCITATION
Version date: 2023-08-04		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	**EMR:** EMR	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS
• Suspected acute adrenal insufficiency in a patient with known chronic adrenal insufficiency or abrupt cessation of corticosteroids use

CONTRAINDICATIONS
• None

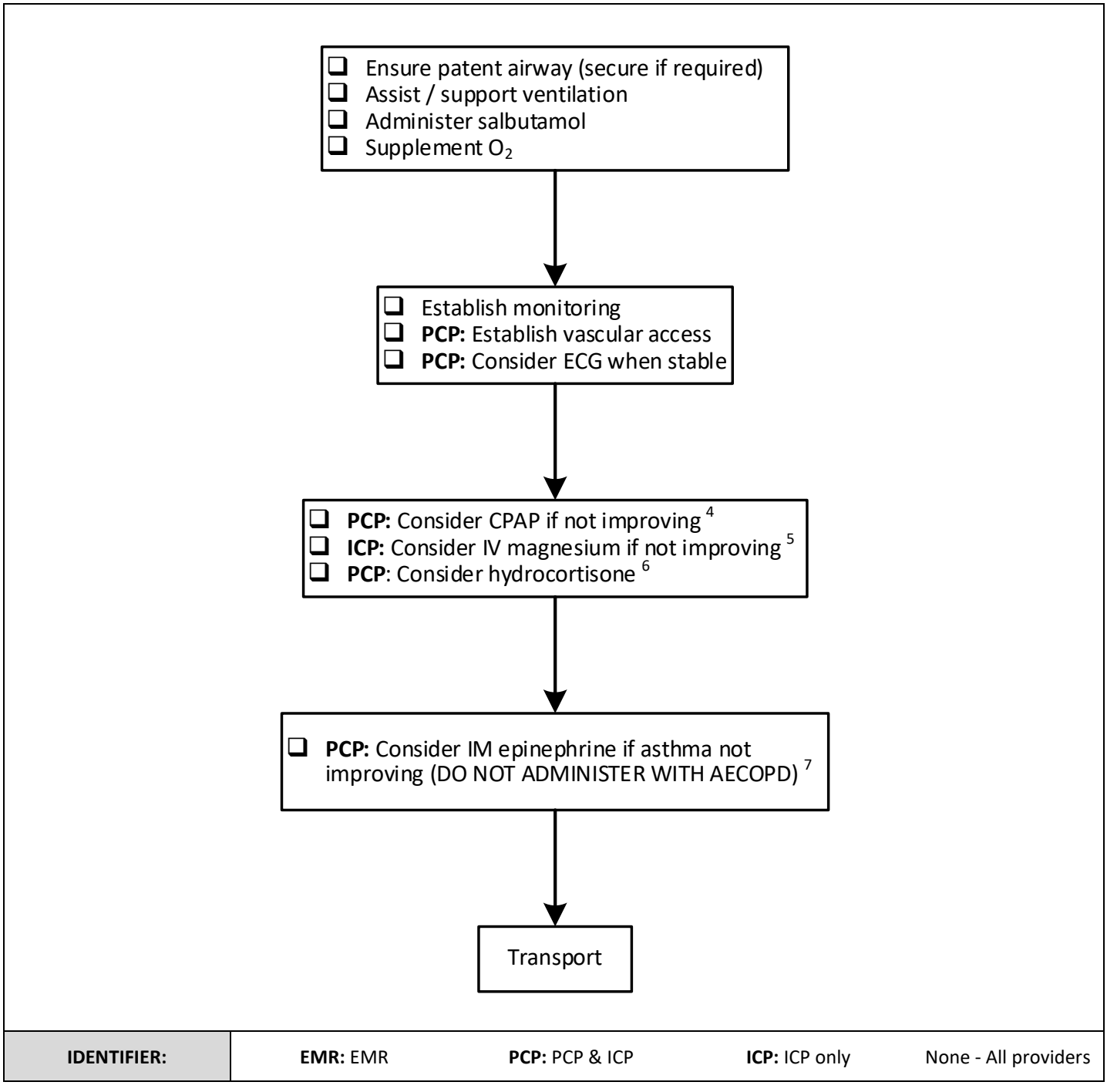
NOTES
1. **Adrenal crisis** refers to acute adrenal insufficiency. It is a life-threatening emergency characterized by shock that requires immediate treatment with large volume fluid and corticosteroid replacement. 2. It may be due to a primary disorder of the adrenal glands (Addison's disease), the pituitary gland (secondary hypoadrenalism), or the hypothalamus (tertiary hypoadrenalism). It is commonly seen in patients who abruptly discontinue chronic use of corticosteroids, such as prednisone. 3. In a patient with known chronic adrenal insufficiency, hypotension or hypoglycemia should be assumed to be due to adrenal crisis. Other symptoms suggesting impending adrenal crisis include: • Nausea, vomiting, anorexia • Abdominal pain • Weakness, fatigue • Lethargy, confusion, coma • Fever • Dehydration 4. Administer hydrocortisone by the most expedient route possible (IV, IO, IM). Patients with known adrenal insufficiency may have their own supply of prepared doses of hydrocortisone for emergencies, and this can be substituted when available. 5. Fluid deficits of several liters are common.

LINKS
M13 - HYDROCORTISONE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X03 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header • Hydrocortisone may be given by IM route if vascular access not available

Shared health Soins communs Manitoba	E07 - ASTHMA / COPD	
	All ages	MEDICAL
Version date: 2024-01-15		Effective date: 2024-02-13 (0700 hrs)



IDENTIFIER:	**EMR:** EMR	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS
• Patients with dyspnea, respiratory distress, or respiratory failure known or suspected to be due to asthma or chronic obstructive pulmonary disease (COPD)

CONTRAINDICATIONS
• Not applicable

NOTES

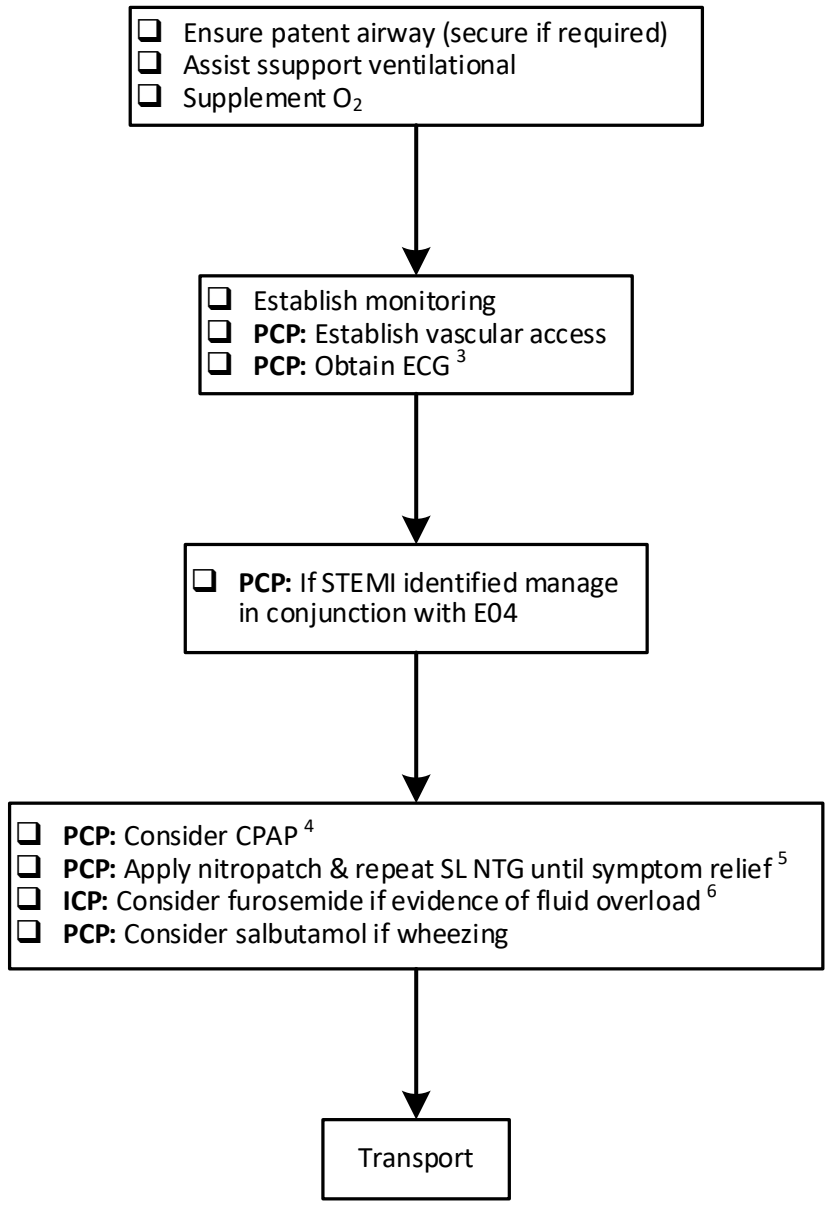
1. A lack of wheezing in a patient with bronchospasm may indicate severe airflow obstruction (silent chest) and is an ominous sign in asthma. Many patients with COPD will have severe fixed obstruction to airflow and do not move enough air to produce wheezing.
2. In the absence of arterial blood gas analysis, respiratory failure should be presumed with a pulse oximetry measurement of less than 90% on room air or a capnometry reading of greater than 45 mmHg. Patients with dyspnea or distress can rapidly progress to respiratory failure despite adequate initial readings. Continuous monitoring with oximetry, capnometry, electrocardiography and frequent blood pressure measurements is essential.
3. Agitation in a patient with respiratory distress is assumed to be due to hypoxemia until proven otherwise, while a decrease in level of consciousness may indicate progressing hypercapnia. DO NOT SEDATE A PATIENT WITH RESPIRATORY DISTRESS OR FAILURE.
4. Continuous positive airway pressure (CPAP) ventilation is an aerosol generating medical procedure (A09). Extended personal protective equipment (PPE) is required.
    - CPAP ventilation can be performed if the patient has tested negative for COVID that day (by PCR or RAD administered by a health care provider), or the patient's status is unknown but COVID is reasonably not suspected based on circumstances leading up to the event.
    - Do not perform CPAP if the patient has tested positive for COVID in the preceding ten days (by PCR or self-administered RAD), or the patient's status is unknown but COVID is suspected based on the patient's clinical presentation, or known exposure.
5. Intravenous magnesium sulfate is a short-acting bronchodilator that is well established to be beneficial in asthma. Recent evidence suggests it is *equally* effective in acute exacerbations of COPD (AECOPD).
6. Systemic steroids hasten improvement in patients with severe airway obstruction and *early* administration is indicated if initial bronchodilator treatment is ineffective.
7. Parenteral epinephrine may be lifesaving in patients with impending respiratory arrest due to asthma who do not respond to, cannot tolerate, or cannot cooperate with inhaled bronchodilators. There is no evidence to support its use in AECOPD, and it may precipitate cardiac arrhythmias or myocardial ischemia, especially in patients who are already hypoxemic or acidotic.

NOTES
• A09 - AEROSOL GENERATING MEDICAL PROCEDURES • M05.3 - EPINEPHRINE FOR ASTHMA • M13 - HYDROCORTISONE • M15 - SALBUTAMOL • M24 - MAGNESIUM SULFATE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (REFER TO X05 FOR CHANGE TRACKING)
• Known exposure added to COVID suspected

Shared health Soins communs Manitoba	E08 - ACUTE DECOMPENSATED HEART FAILURE	
	All ages	MEDICAL
Version date: 2024-01-15		Effective date: 2024-02-13 (0700 hrs)



IDENTIFIER:	**EMR:** EMR	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS
• Patients with acute dyspnea, worsening of chronic dyspnea, respiratory distress, or respiratory failure known or suspected to be due to heart failure

CONTRAINDICATIONS
• Not applicable

NOTES

1. In the absence of arterial blood gas analysis**,** respiratory failure should be presumed with a pulse oximetry measurement of less than 90% on room air or a capnometry reading of greater than 45 mmHg. Patients with dyspnea or distress can *rapidly* progress to respiratory failure despite adequate initial readings. Continuous monitoring with oximetry, capnometry, electrocardiography and frequent blood pressure measurements is essential.

   Agitation in a patient with respiratory distress is assumed to be due to hypoxemia until proven otherwise, while a decrease in level of consciousness may indicate progressing hypercapnia. DO NOT SEDATE A PATIENT WITH RESPIRATORY DISTRESS OR FAILURE.

2. **Acute decompensated heart failure** (ADHF) is a common cause of dyspnea and may be due to a variety of cardiac diseases. It may occur suddenly due to a new event (eg. ischemia, arrhythmia) or may represent a more gradual deterioration of the chronically failing heart (eg. disease progression, noncompliance). While commonly called congestive heart failure, it is not always accompanied by signs of fluid overload (ie. congestion).

   Pulmonary edema refers to ADHF causing fluid overload in the lungs (ie, respiratory distress, crackles, distended neck veins) and is often called *cardiogenic* pulmonary edema to differentiate it from noncardiac causes of increased lung fluid. In addition to crackles, wheezing due to edema in the bronchiolar walls may be present and work of breathing may improve with bronchodilator administration.

3. Acute coronary syndrome (ACS) with myocardial ischemia, injury or infarction may present as heart failure without cardiac pain.

4. Continuous positive airway pressure (CPAP) ventilation is an aerosol generating medical procedure (A09). Extended personal protective equipment (PPE) is required.

   - CPAP ventilation can be performed if the patient has tested negative for COVID that day (by PCR or RAD administered by a health care provider), or the patient's status is unknown but COVID is reasonably not suspected based on circumstances leading up to the event.
   - Do not perform CPAP if the patient has tested positive for COVID in the preceding ten days (by PCR or self-administered RAD), or the patient's status is unknown but COVID is suspected based on the patient's clinical presentation, or known exposure.

5. Vasodilators are first line pharmacotherapy for pulmonary edema. As it is often accompanied by ventricular dysfunction, hypotension must be avoided with these.

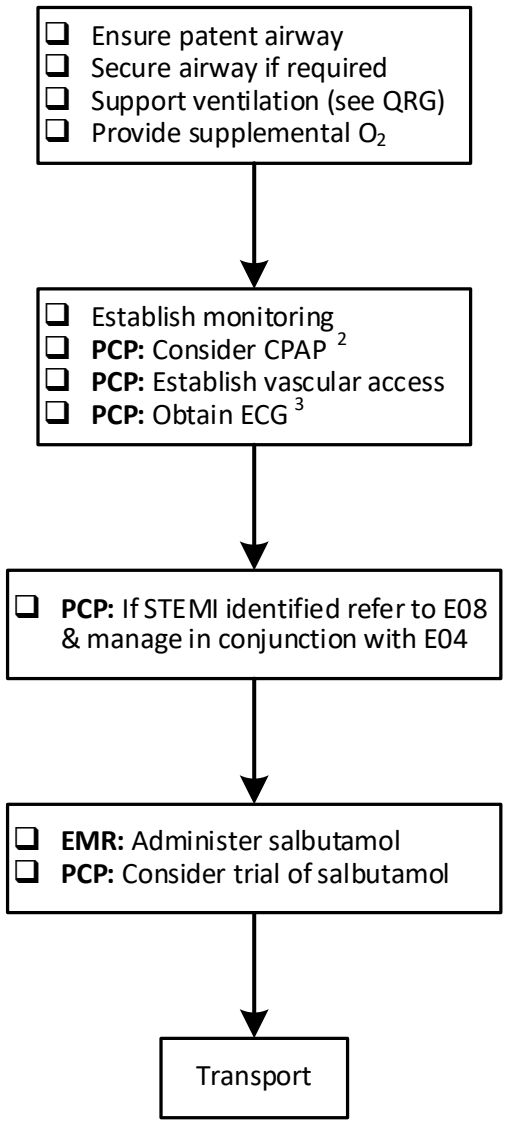
6. Limited data suggest that diuretics are effective in relieving symptoms in pulmonary edema and *early* administration is associated with lower mortality. Although the peak effect may take up to two hours, the onset of diuresis typically begins within 15 to 20 minutes. It may also cause venodilation leading to early symptom improvement.

LINKS
• A09 - AEROSOL GENERATING MEDICAL PROCEDURES • M09 - FUROSEMIDE • M21 - NITROGLYCERIN

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (REFER TO X05 FOR CHANGE TRACKING)
• Known exposure added to COVID suspect

Shared health Soins communs Manitoba	E09 - RESPIRATORY DISTRESS OF UNKNOWN CAUSE	
	All ages	MEDICAL
Version date: 2024-01-15		Effective date: 2024-02-13 (0700 hrs)



IDENTIFIER:	**EMR:** EMR	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS
• Patients with acute dyspnea, worsening of chronic dyspnea, respiratory distress, or respiratory failure of unknown cause [1]

CONTRAINDICATIONS
• For patients with dyspnea, respiratory distress, or respiratory failure known or suspected to be due to asthma or chronic obstructive pulmonary disease (COPD) refer to E07 • For patients with acute dyspnea, worsening of chronic dyspnea, respiratory distress, or respiratory failure known or suspected to be due to heart failure refer to E08

NOTES

1. In the absence of arterial blood gas analysis**,** respiratory failure should be presumed with a pulse oximetry measurement of less than 90% on room air or a capnometry reading of greater than 45 mmHg. Patients with dyspnea or distress can *rapidly* progress to respiratory failure despite adequate initial readings. Continuous monitoring with oximetry, capnometry, electrocardiography and frequent blood pressure measurements is essential.

   Agitation in a patient with respiratory distress is assumed to be due to hypoxemia until proven otherwise, while a decrease in level of consciousness may indicate progressing hypercapnia. DO NOT SEDATE A PATIENT WITH RESPIRATORY DISTRESS OR FAILURE.

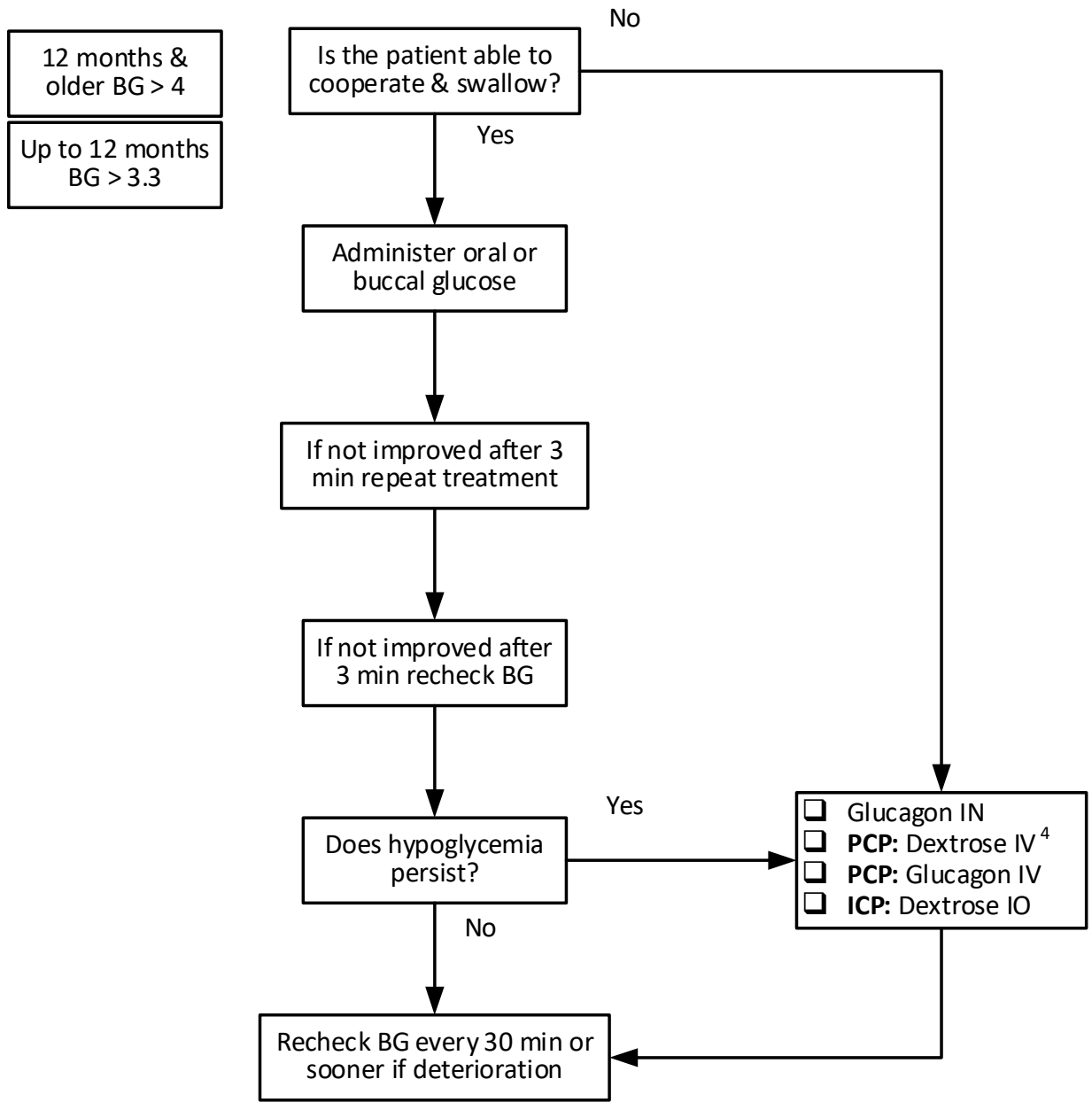
2. Continuous positive airway pressure (CPAP) ventilation is an aerosol generating medical procedure (A09). Extended personal protective equipment (PPE) is required.
   - CPAP ventilation can be performed if the patient has tested negative for COVID that day (by PCR or RAD administered by a health care provider), or the patient's status is unknown but COVID is reasonably not suspected based on circumstances leading up to the event.
   - Do not perform CPAP if the patient has tested positive for COVID within ten days (by PCR or self-administered RAD), or the patient's status is unknown but COVID is suspected based on the patient's clinical presentation, or known exposure.
3. Acute coronary syndrome (ACS) with myocardial ischemia, injury or infarction may present with painless dyspnea, and may not have signs of heart failure.

NOTES	
• A09 - AEROSOL GENERATING MEDICAL PROCEDURES • E07 - ASTHMA / COPD	• E08 - ACUTE HEART FAILURE • M15 - SALBUTAMOL

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (REFER TO X05 FOR CHANGE TRACKING)
• Known exposure added to COVID suspect

Shared health Soins communs Manitoba	E10 - HYPOGLYCEMIA	
	All ages	MEDICAL
Version date: 2023-08-06		Effective date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS

- Confirmed hypoglycemia as indicated by a point-of-care blood glucose (BG) of:
  - 12 months & older = 4.0 mmol/L or less
  - 72 hours up to 12 months = 3.3 mmol/L or less [1]
- Suspected hypoglycemia when BG measurement is not readily available [2]

CONTRAINDICATIONS

- Not applicable

NOTES

1. After the initial newborn period BG values in infants may be lower than older patients. For the purposes of this protocol a lower threshold has been set for patients under 12 months.
2. Due to the development of *autonomic neuropathy* with longstanding diabetes, some patients may no longer exhibit the neurogenic "warning symptoms" of hypoglycemia, and directly proceed to lethargy, confusion, decreased level of consciousness (LOC) or seizures.

   Symptoms in infants & preverbal children are frequently nonspecific and include irritability, lethargy, poor feeding, cyanosis and tremor or jitteriness. Commonly infants may not manifest any signs until they present with a hypoglycemic seizure.
3. Hypoglycemia in infants and children may not response to glucagon (due to depleted hepatic glycogen stores). Paramedics may consider proceeding directly to intravenous dextrose.

   Hypoglycemia in infants and children may be an indication of poor oral intake. Evidence of starvation should raise the suspicion for child neglect or abuse.
4. When limited volume is required, paramedics may use 50% dextrose <u>in adults and adolescents only</u>. Infants and young children can develop severe neurological injury can occur with rapid shifts in serum osmolality, and volume restriction is rarely necessary.
5. After a prolonged period of hypoglycemia, a patient may require some time to return to their baseline cognitive level. However, there should be some evidence of improved LOC within a few minutes after treatment.

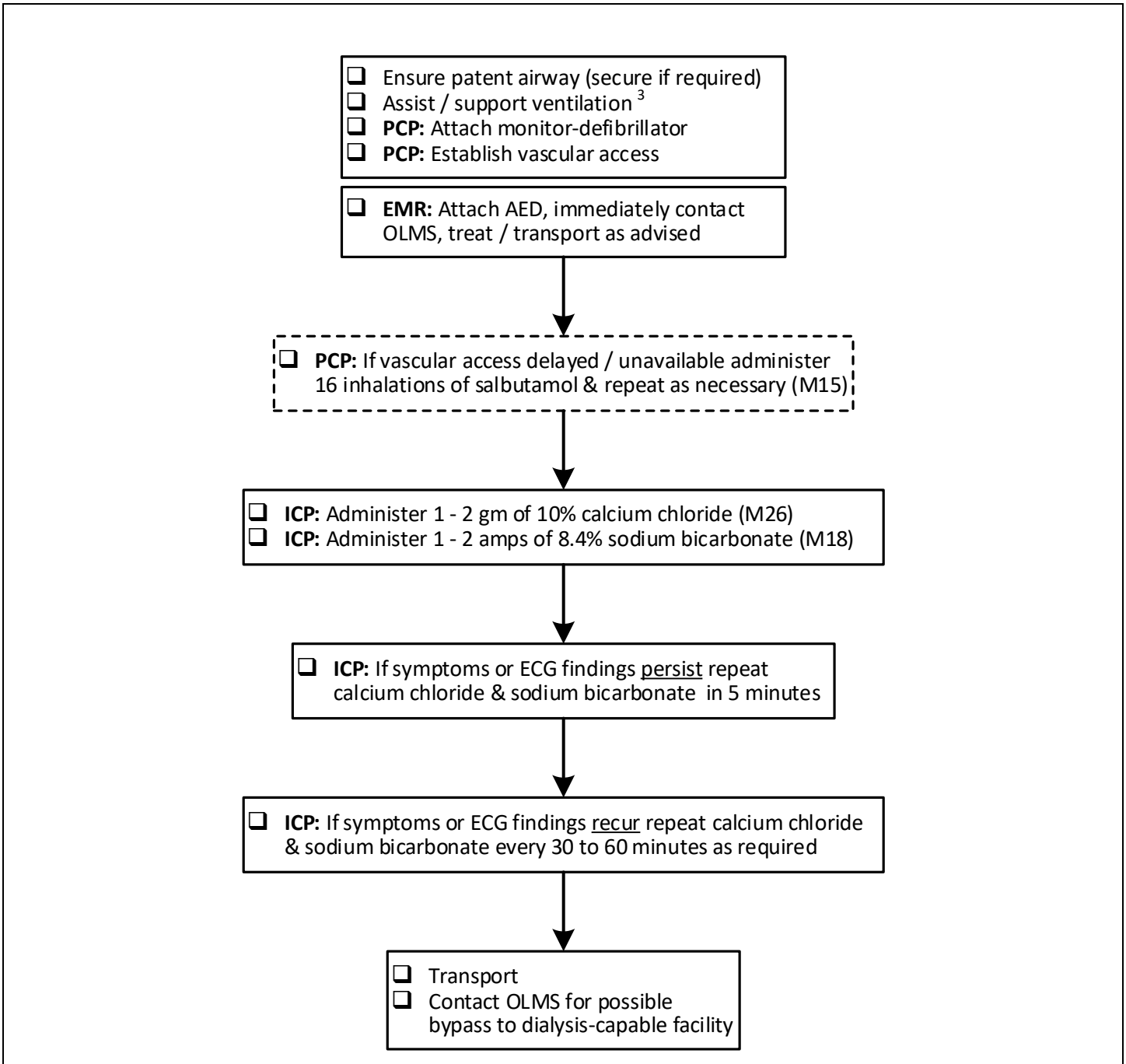
LINKS

M06.1 - GLUCOSE
M06.2 - DEXTROSE
M06.3 - GLUCAGON
M06.4 - GLUCAGON NASAL POWDER

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X05 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	E11 - HYPERKALEMIA	
	All ages	MEDICAL
Version date: 2023-11-09		Effective date: 2024-02-13 (0700)



IDENTIFIER	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS

- Cardiac arrest in dialysis-dependent patient
- Known or suspected hyperkalemia in a non-arrested patient
- Dialysis-dependent patient with one or more of the following:
  - Missed at least one scheduled dialysis treatment [1]
  - Muscle weakness or paralysis
  - Palpitations, presyncope or syncope
  - Cardiac conduction abnormalities, arrhythmias, or electrocardiographic findings [2]

CONTRAINDICATIONS

- Cardiac arrest in a dialysis-dependent patient will be managed as per C01 or C02

NOTES

1. A patient may be asymptomatic with severe hyperkalemia. Symptoms usually involve cardiac or skeletal muscle.
2. Certain characteristic electrocardiographic (ECG) features evolve as the serum potassium level rises (appendix A). However, the absence of ECG changes does not exclude hyperkalemia.

   Rhythm abnormalities usually occur when the serum potassium reaches a level of approximately 7.0 mEq/l but can appear at lower levels if the rise in potassium is sudden. Patients can rapidly progress from an apparently normal ECG to cardiac arrest.
3. Respiratory acidosis from hypoventilation causes potassium to move from the intracellular to extracellular environment raising the serum level. Hyperventilation can temporarily lower it by shifting potassium back into cells.
4. In the non-arrested patient, administer calcium chloride & sodium bicarbonate by slow push over 2 to 3 minutes with continuous cardiac monitoring.
5. Sodium bicarbonate is not compatible with calcium salts (flush intravenous tubing well between administration of calcium and bicarbonate).

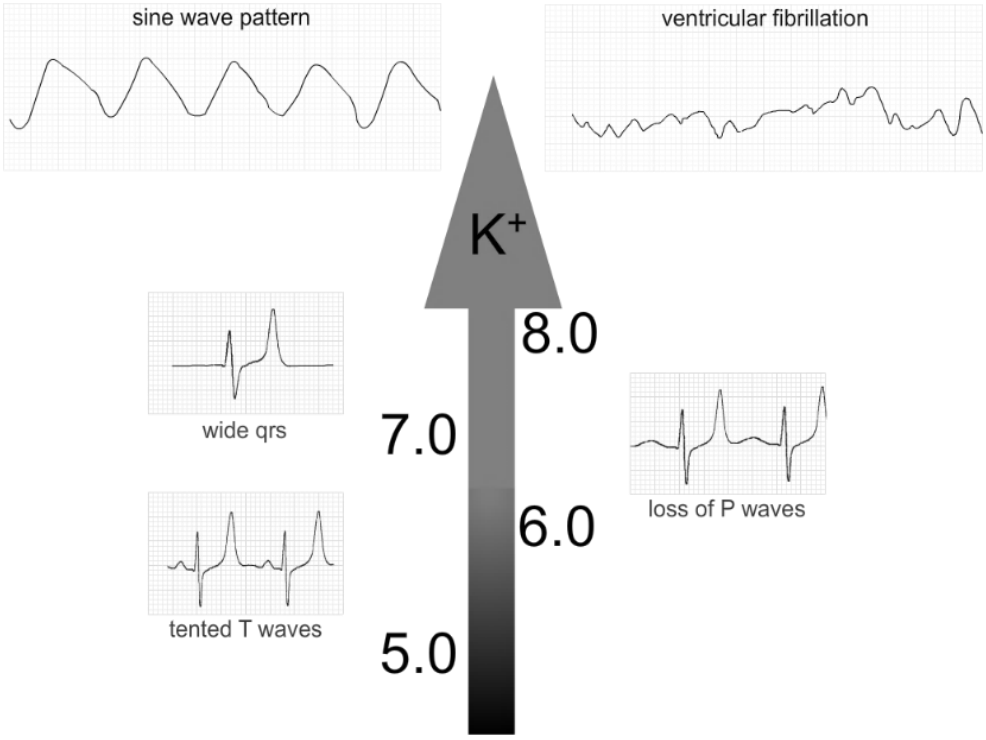
LINKS

C01 - BASIC CARDIAC ARREST
C02 - ADVANCED CARDIAC ARREST
M15 - SALBUTAMOL
M18 - SODIUM BICARBONATE
M26 - CALCIUM CHLORIDE

APPROVED BY	
	
Medical Director - EMS	Associate Medical Director - EMS

VERSION CHANGES (refer to X05 for change tracking)
• New (replaces M10) • Removal of insulin & dextrose from prehospital treatment

APPENDIX A: ELECTROCARDIOGRAPHIC FEATURES OF HYPERKALEMIA

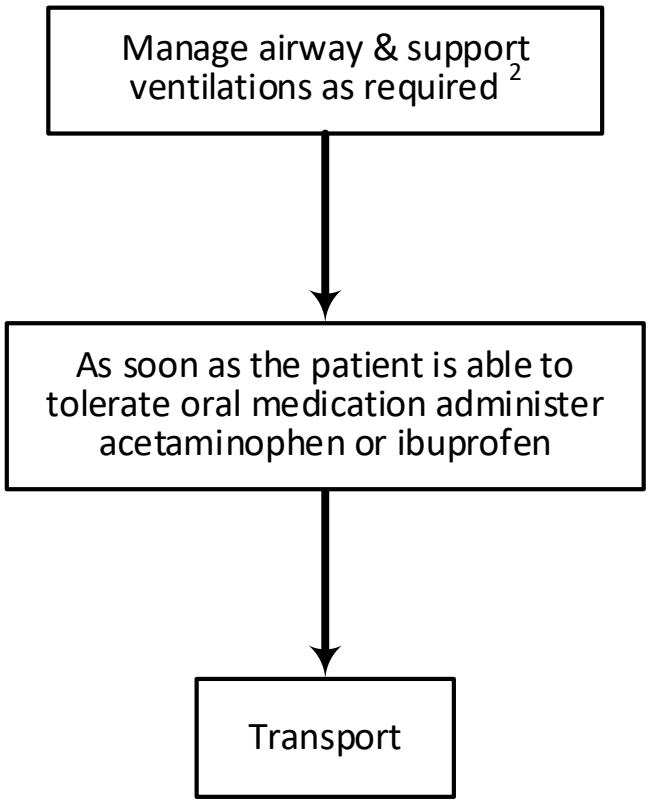


Serum potassium (mEq/l)	Usual ECG Features [5]
5.5 - 6.5	• Peaked (tented) T waves
6.5 - 7.5	• Loss of P waves
7.0 - 8.0	• Widening of QRS complex
> 8.0	• Sine wave

Common Rhythm Abnormalities [2]

- ☐ Bundle branch block
- ☐ Sinus bradycardia / arrest
- ☐ Idioventricular rhythms
- ☐ Sine wave pattern
- ☐ Ventricular tachycardia
- ☐ Ventricular fibrillation
- ☐ Asystole

Shared health Soins communs Manitoba	E13 - PEDIATRIC FEBRILE SEIZURE	
	72 hours up to 6 years	MEDICAL
Version date: 2023-08-06		Effective date: 2023-10-24 (0700 hrs)



IDENTIFIER:	EMR: EMR	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• Patients with febrile seizure

CONTRAINDICATIONS
• For recurrent seizures refer to E14 - SEIZURE

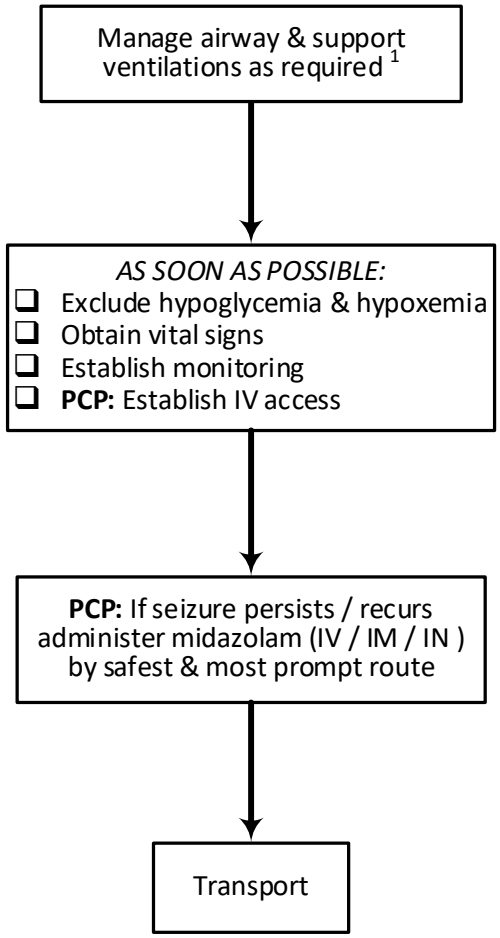
NOTES
1. Benign febrile seizures are usually brief (less than ten minutes), self-limited, rarely recur, and do not require anticonvulsant medications. They are rare after early childhood. 2. Respiratory depression, hypoxemia and airway compromise are uncommon after the seizure has aborted.

LINKS
M02.1 - ACETAMINOPHEN M02.2 - IBUPROFEN

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X05 for change tracking)
• New (extracted from E14 - SEIZURES)

Shared health Soins communs Manitoba	**E14 - SEIZURE**	
	All ages	MEDICAL
Version date: 2023-08-06		Effective date: 2023-10-24 (0700 hrs)



IDENTIFIER:	**EMR:** EMR	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

INDICATIONS
• Patients with one or more generalized seizures

CONTRAINDICATIONS
• Not applicable

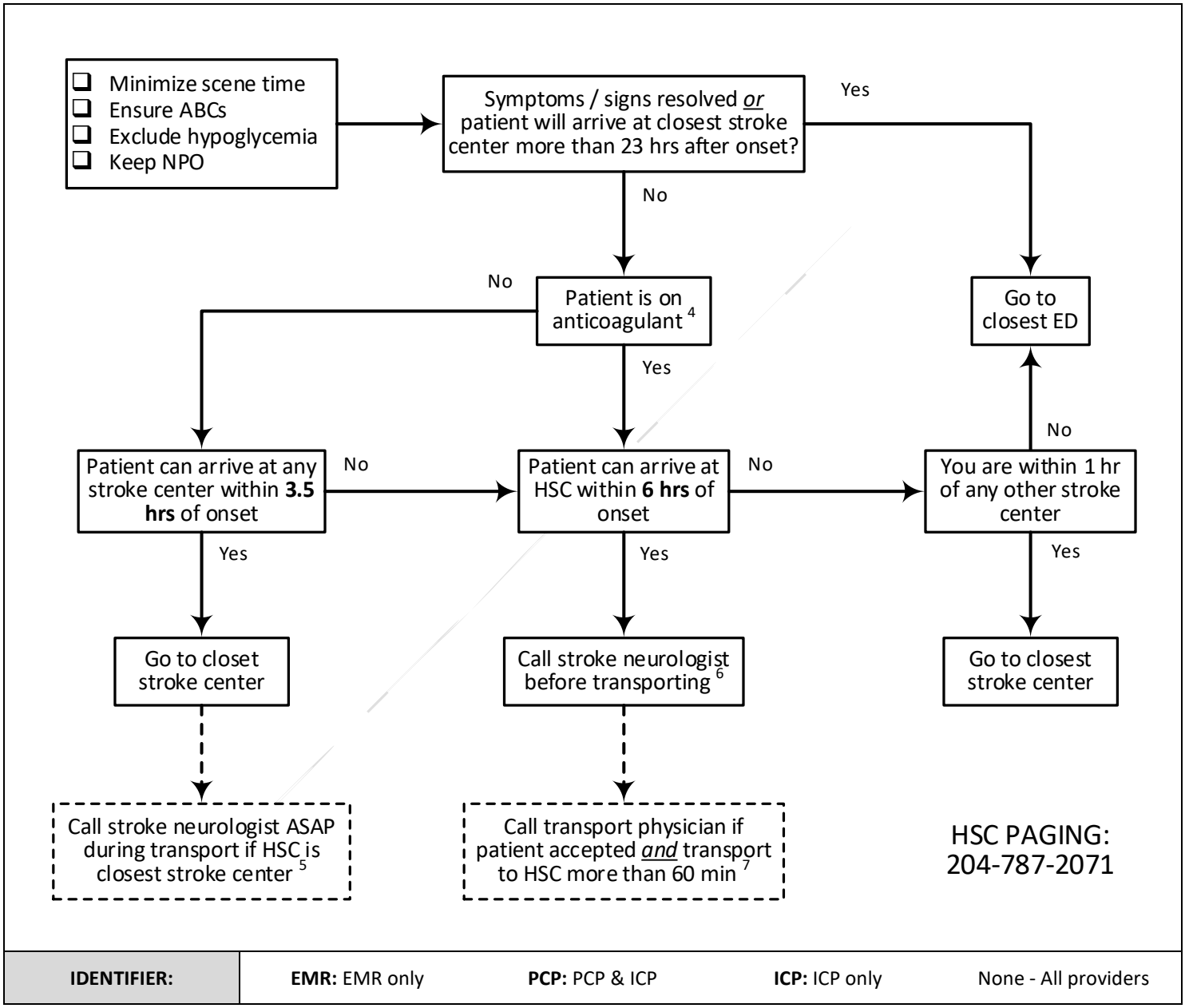
NOTES
1. Respiratory depression, hypoxemia and airway compromise are common in the post-seizure period, especially if midazolam is administered to terminate the seizure(s). Patients may injure themselves during a seizure and it may be difficult to exclude a spinal injury if the patient has a decreased level of consciousness or altered mentation. 2. Most seizures resolve spontaneously within a few minutes and rapid administration of a benzodiazepine is often not required if it appears that the seizure is resolving or has resolved. If in doubt, consult the on-line medical support (OLMS) physician.

LINKS
M07.1 -MIDAZOLAM

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X05 for change tracking)
• Pediatric febrile seizure has been removed • Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	E15 - ACUTE STROKE	
	Adult	MEDICAL
Version date: 2024-01-19		Effective date: 2024-02-13 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

Table 1: MANITOBA STROKE CENTRES [2]	
Bethesda Regional Health Centre (Steinbach)	Health Sciences Centre (Winnipeg)
Boundary Trails Health Centre (Winkler)	Portage District General Hospital
Brandon Regional Health Centre	St. Anthony's General Hospital (The Pas)
Dauphin Regional Health Centre	Thompson General Hospital

INDICATIONS

- Onset within the last 23 hours of a new neurological deficit, including any of the following:
  - Altered level of consciousness
  - Unilateral weakness or numbness
  - Vison loss or double vision
  - Slurred speech or aphasic
  - Trouble comprehending speech
  - Imbalance

CONTRAINDICATIONS

- Instability of the airway, breathing or circulation that cannot be managed with available prehospital personnel, procedures, or equipment
- Glasgow coma score equal to 8 or less
- Symptoms or signs due to hypoglycemia and resolve with euglycemia
- Health care directive or advanced care plan indicating comfort care only (ACP-C)

NOTES

1. For the purpose of this care map, stroke onset will be defined as the time at which neurological symptoms or signs first appeared or the time at which the patient was last seen to be at their neurological baseline.
2. Because of the potential need for rapid referral to the Health Sciences Center (HSC) for interventional stroke treatment or neurosurgical assessment and the challenges with patient repatriation, paramedics will only transport to a Manitoba stroke center (table 1).
3. In certain locations, such as a rural emergency department (ED) or Northern nursing station, it may not be possible for a physician to assess the patient in a timely manner. To limit delay, a nurse may initiate an interfacility transport (IFT) without assessment by a physician. The Medical Transportation Coordination Center (MTCC) will authorize the IFT without the requirement of a receiving physician. Paramedics will manage this as if it were a primary response call.

4. Patients on anticoagulants cannot receive intravenous thrombolysis (IVT). Some may be suitable for endovascular thrombectomy (EVT) available only at HSC.

   Anticoagulants are listed in reference H11. The most common agents include apixaban (ELIQUIS), dabigatran (PRADAXA), rivaroxaban (XARELTO), and warfarin (COUMADIN).

5. As soon as possible during transport, call HSC paging (204-787-2071) and request to speak to the "on-call stroke neurologist" for a "stroke-25 outside call".

6. As soon as possible before transporting, contact the stroke neurologist. They may advise going directly to HSC, or transporting to an alternate site for initial medical assessment and diagnostic imaging.

7. If the neurologist advises direct transport to HSC and the transport time will be greater than 60 minutes, promptly contact MTCC and request to speak to the "Provincial transport physician" for possible air intercept.

8. The stroke neurologist may advise paramedics to inform the Virtual Emergency Care and Transport Resource Service (VECTRS) who can provide "stroke-25 activation" to HSC and pre-register the patient for computed tomography (CT) imaging and angiography. Paramedics may be directed to transport the patient directly to CT.

9. Paramedics will encourage an individual who is able to verify the time of onset and/or provide collateral information and/or provide substitute (proxy) consent to accompany the patient.

   If the proxy cannot accompany the patient, obtain appropriate information (e.g. phone number) for immediate contact and advise them to remain readily available.

LINKS
• H11 - ANTICOAGULANTS

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X05 for change tracking)
• Simplified flow chart & notes • Revised indications & contraindications • Direction to go to telestroke site if within one hour • Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: STROKE ASSESSMENT

Initial information:

- Patient age & gender
- Stroke symptoms or signs
- Time of onset
- Indicate if the patient is on an anticoagulant
- Time to closest stroke center or telestroke site
- Advanced health care directive

Identifying information *(required to access prior medical records):*

- Patient name
- Manitoba personal health information number (PHIN)
- Date of birth

Initial clinical assessment

- Vital signs, including point-of-care glucose
- Los Angeles Motor Scale (LAMS - appendix B)
- Focused neurological examination for stroke - note right or left:
  - Level of consciousness (alert, responds to voice, responds to pain or unresponsive)
  - Speech (normal, slurred, incomprehensible or mute)
  - Smile (normal, partial droop or complete droop)
  - Arm strength (normal, slow drift or rapid fall)
  - Leg strength (normal, slow drift or rapid fall)

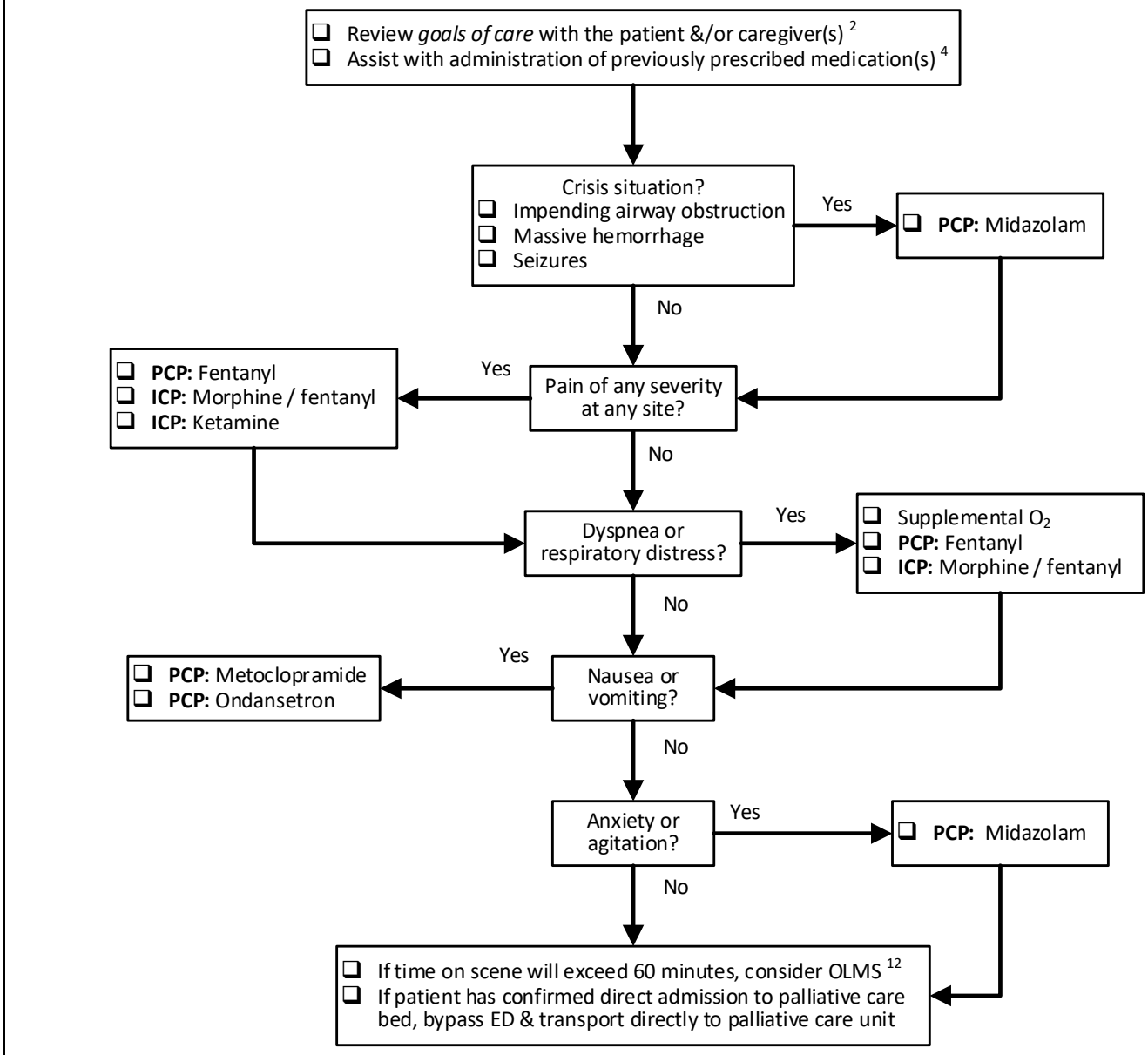
Medical history *(obtain as much detail as possible)*

- Within the last 3 months has the patient had a surgical procedure, major traumatic injury, myocardial infarction, and/or any serious bleeding?
- Has the patient had a seizure within the last 24 hours?
- What other health conditions does the patient have?
- Does the patient have a bleeding or clotting disorder?
- Is the patient on an anticoagulant? What other medications does the patient take?
- Is the patient allergic to any medication or substance?
- When did the patient last eat or drink?

APPENDIX B: LOS ANGELES MOTOR SCALE (LAMS)

- - -	0	1	2
FACIAL DROOP	absent	present	- - -
ARM DRIFT	absent	drifts down	falls down
GRIP STRENGTH	normal	weak	no grip

Shared health Soins communs Manitoba	E16 - PALLIATIVE CARE	
	Adult	MEDICAL
Version date: 2024-01-15		Effective date: 2024-02-13(0700)



IDENTIFIER:	**PCP:** PCP & ICP	**ICP:** ICP only	None - All providers

To apply this care map, a paramedic must have successfully completed the Pallium Canada - Learning Essential Approaches to Palliative Care (LEAP™) *core training.*

INDICATIONS
• Patient is enrolled in the Interlake Eastern Regional Health Authority (IERHA) palliative care program, regardless of the patient's point of origin [1]

CONTRAINDICATIONS
• Patient's condition is due to an unexpected cause such as an accident, suicide attempt or assault • Patient's current goals of care include resuscitative measures [3] • For the purposes of this care map only true allergy to a medication is the only absolute contraindication to its administration

Some drugs and medical functions in this care map exceed the usual EMS work scope (A06) and standing orders (M-documents). This protocol supersedes all other care maps for patients enrolled in the IERHA palliative care program.

NOTES

1. Enrollment in the IERHA palliative care program must be confirmed to apply this protocol.
2. A patient's *health care directive* or *advanced care plan* may be used to guide the discussion and decisions around goals of care. A patient or their proxy may indicate a change in the goals of care verbally without completion of a new written document.
3. If the patient's goals of care have changed to include resuscitative measures, discontinue the use of this protocol, and refer to the appropriate care map.
4. Paramedics may perform any and all steps required to assist the patient to take any prescribed medication.
5. Vital sign measurements are not required for the application of this care map and should not be routinely obtained.
6. Management of symptoms (eg. pain, nausea, dyspnea) should be carried out using pharmacologic and, where appropriate, non-pharmacologic measures in accordance with the patient's subjective report symptom severity.
7. Medications should generally be administered by the subcutaneous (SC) route.
8. Intravenous (IV) access is not required to administer intranasal (IN) medications. If multiple doses are required, paramedics should switch from the IN to SC or IV route of administration.
9. If necessary, remind loved ones in attendance that the sounds of excess secretions are due to small amounts on the vocal cords, do not indicate choking, and are not harmful or distressing to the patient.
10. If a paramedic establishes an SC catheter it *should* be left in place unless the patient or their proxy requests removal. If a paramedic starts an IV line remove it before departure, or consult OLMS.
11. If not transporting, document the date and time that EMS attended in the integrated progress note (IPN) and leave the hospital copy of the patient care record (PCR) with the chart. The patient / proxy does not need to sign anything to not be transported.

If transporting, document the date and time, reason for transport and the name of the receiving facility in the IPN. The hospital copy of the PCR should accompany the patient to the hospital.

Fax a copy of all PCRs to the Palliative Care Team at **204-785-4895**.

12. Paramedics may consult on-line medical support (OLMS) at any time.

MEDICATION QUICK REFERENCE GUIDE			
MEDICATION	**ROUTE**	**IINITIAL DOSE**	**REPEAT DOSE**
FENTANYL (PCP & ICP)	INTRANASAL [8]	2 mcg/kg (no maximum)	Every 5 - 10 minutes as required (no maximum)
	SUBCUTANEOUS INTRAVENOUS	1 - 2 mcg/kg (no maximum)	Every 15 to 30 minutes as required (no maximum)
KETAMINE (ICP ONLY)	SUBCUTANEOUS INTRAVENOUS	0.5 mg/kg; follow with 0.25 mg/kg after 10 min if necessary to achieve adequate analgesia	0.25 to 0.5 mg/kg every 30 minutes as require maintaining analgesia (max = 1 mg/kg/hr)
MIDAZOLAM (PCP & ICP)	INTRANASAL	5 mg	Every 5 minutes as required (no maximum)
	SUBCUTANEOUS	2.5 to 5 mg	Every 15 - 30 minutes as required (no maximum)
	INTRAVENOUS	2.5 mg	Every 10 - 15 minutes as required (no maximum)
METOCLOPRAMIDE (PCP & ICP)	SUBCUTANEOUS INTRAVENOUS	10 mg	Every 4 - 6 hours as required
ONDANSETRON (PCP & ICP)	SUBCUTANEOUS INTRAVENOUS	4 mg	Every 6 - 8 hours as required

MORPHINE		
ROUTE	**INITIAL DOSE**	**REPEAT DOSE**
SUBCUTANEOUS (ICP ONLY)	5 mg if not currently on any opioid	Every 30 - 60 minutes as required (no maximum)
	Morphine-equivalent dose if currently on immediate-release opioid	
	Morphine-equivalent dose of breakthrough medication if currently on sustained-release opioid	
INTRAVENOUS (ICP ONLY)	5 mg if not currently on any opioid	Every 10 - 15 minutes as required (no maximum)
	Morphine-equivalent dose if currently on immediate-release opioid	
	Morphine-equivalent dose of breakthrough medication if currently on sustained-release opioid	

CALCULATING MORPHINE-EQUIVALENT DOSE		
CURRENT ORAL MEDICATION	**EQUIVALENT ORAL DOSE OF IMMEDIATE-RELEASE MORPHINE**	**EQUIVALENT IV / SC DOSE OF IMMEDIATE-RELEASE MORPHINE**
Codeine	mgs of codeine **x 0.1**	mgs of codeine **x 0.05**
Morphine	mgs of morphine **x 1**	mgs of morphine **x 0.5**
Oxycodone	mgs of oxycodone **x 2**	mgs of oxycodone **x 1**
Hydromorphone	mgs of hydromorphone **x 5**	mgs of hydromorphone **x 2.5**

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X05 for change tracking)
• Replaces E30A from pilot project • Indications include requirement for LEAP training • Flow chart corrected to indicate PCP can administer fentanyl by any route • IN ketamine removed • Removal of scopolamine patches for secretions (ineffective & no longer available) • Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: PROCEDURE FOR ADMINISTERING A SUBCUTANEOUS INFUSION

INDICATIONS:

- Palliative patient where goals of care include subcutaneous (SC) medication or fluid administration

CONTRAINDICATIONS:

- Overlying infection at proposed insertion site

PROCEDURE:

1. Determine whether there is an existing SC site, or whether one must be established.
2. If a line is already established ensure patency before administering any fluid or medication. If the site is questionable, establish a new SC line, a minimum of 5cm from the previous site.

   If possible, avoid sites with overlying infection and/or burns and/or distal to known injury.
3. To optimize medication absorption and patient comfort, the maximum amount of medication to be administered at one time (excluding flush) is 2 ml.

   To ensure that the 2 ml limit is not exceeded, consider a more concentrated preparation of the ordered medication to ensure that the maximum amount administered does not exceed 2 ml.

   Alternatively, administer in 2 ml increments at 15-20-minute intervals, or start a secondary line.
4. If the medication has not absorbed after 15-20 minutes (i.e. presence of palpable “bump” indicating incomplete absorption), determine if a second site is required for future doses and/or wait another 15- 20 min and then administer the remainder of the medication (no more than 2 ml at one time).
5. Ensure lines are clearly labelled when multiple sites are used for administering different medications.
6. If an SC line has been established by paramedics it should be left in place when EMS departs the scene, unless the patient or family specifically requests its removal.
7. Document on patient file.

APPENDIX B: URINARY CATHETER IRRIGATION

INDICATIONS:

- Patient has an already established indwelling urinary catheter
- Impaired urinary elimination
- Urinary retention

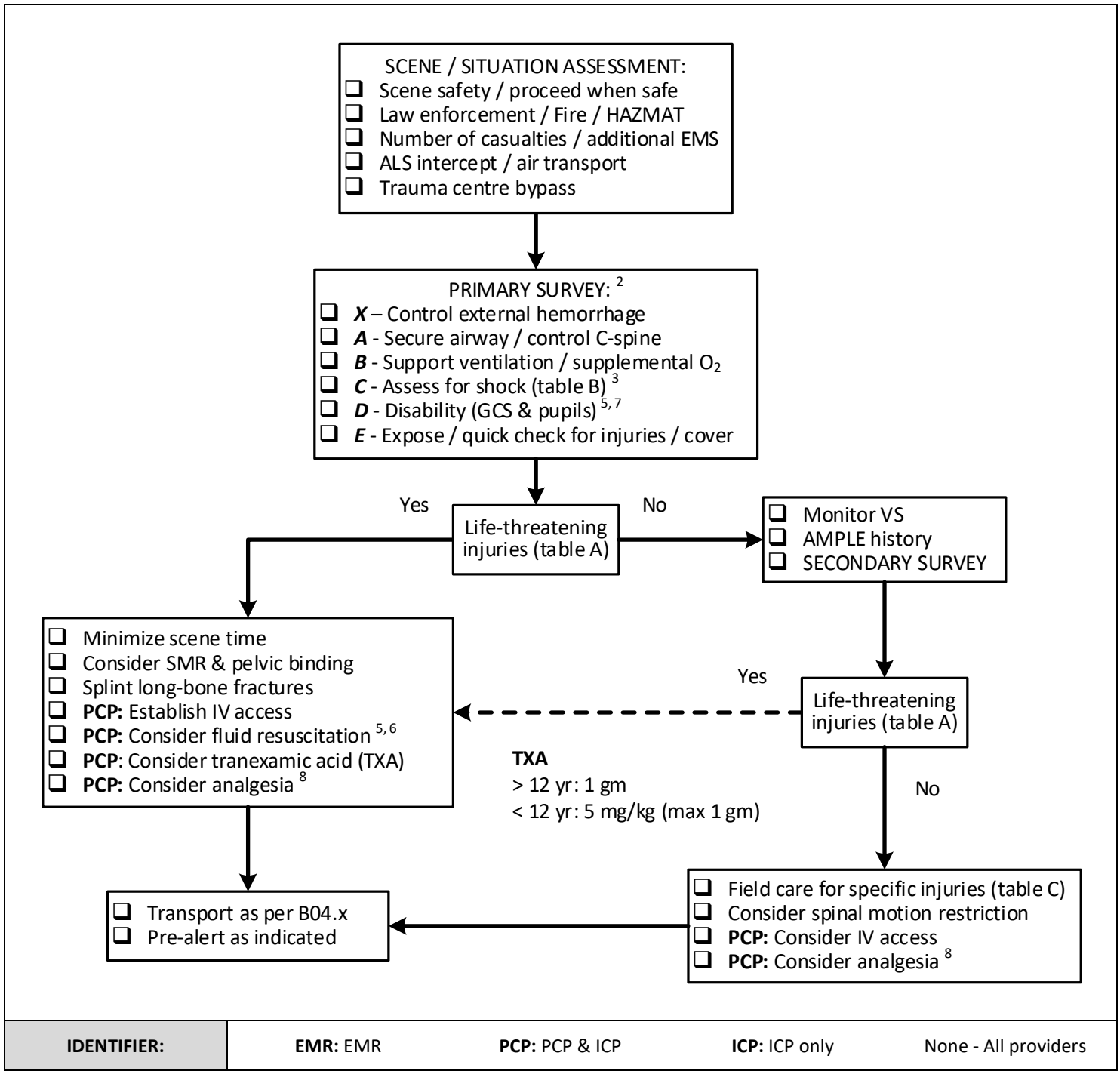
CONTRAINDICATIONS:

- Patient has had recent transurethral surgery
- Physician order in place that states not to flush urinary catheter

PROCEDURE:

1. Assist patient into a supine position. Expose only the catheter that is connected to the urinary catheter drainage bag. Ensure patient privacy with use of a drape or blanket to cover patient.
2. Perform hand hygiene
3. Wipe the catheter connection to the drainage bag for 30 seconds with an alcohol swab. Allow to air dry.
4. Slowly instill no more than 30 ml of the prescribed irrigation solution into the catheter, using gentle pressure. Excessive volume of solution can cause bladder spasms and/or hemorrhage.
5. If there is resistance against the instillation, apply firm, but not excessive force against the syringe plunger. If greater force is needed, stop the procedure, and remove the syringe.
6. After the solution is instilled, remove the syringe and allow the solution to drain into a collection container by holding the catheter over the container. If the fluid is not draining, assist the patient to lie on his/her side to promote fluid return. Do NOT aspirate the solution, as there is risk for bladder trauma, which can predispose the patient to infection.
7. If irrigation is unsuccessful after two attempts, cease irrigation attempts and discuss other treatment options.
8. Document on patient file: procedure performed along with the amount and type of irrigation solution, amount returned as drainage, characteristics of returns (color, clarity, presence of clots/mucous), patient response to procedure.

Shared health Soins communs Manitoba	F01 - MAJOR TRAUMA	
	All ages	TRAUMA
Version date: 2023-11-11		Effective Date: 2023-12-19 (0700)



IDENTIFIER:	EMR: EMR	PCP: PCP & ICP	ICP: ICP only	None - All providers

TABLE A: LIFE-THREATENING INJURIES	
IMMEDIATE	**POTENTIAL**
• Airway obstruction • Hypoxemia • Flail chest • Tension pneumothorax • Open pneumothorax • Exsanguination • Shock • Intracranial injury with cerebral herniation	• Penetrating trauma to head / neck / torso • Penetrating trauma / amputation / multiple fractures proximal to elbow or knee • Open book pelvic fractures • Head trauma with depressed skull fracture, focal neurological deficit, or GCS < 13 • Paraplegia or quadriplegia • Major burns (20% BSA) or airway involvement • Unstable vital signs

TABLE B: SIGNS, SYMPTOMS & CLASSES OF HEMORRHAGIC SHOCK				
PARAMETER	**CLASS 1**	**CLASS 2**	**CLASS 3**	**CLASS 4**
Blood loss (%)	Less than 15	15 - 30	30 - 40	Greater than 40
Heart rate	Normal	Normal / increased	Increased	Very increased
Blood pressure	Normal	Normal	Normal / decreased	Decreased
Pulse pressure	Normal	Decreased	Decreased	Decreased
Respiratory rate	Normal	Normal	Normal / Increased	Increased
GCS	Normal	Normal	Decreased	Decreased
TXA	Consider	Strongly consider	Administer	Administer
Blood products	Unlikely	Possible	Probable	Yes (MTP) [4]

INDICATIONS
• All patients who have sustained traumatic injuries

CONTRAINDICATIONS
• For traumatic cardiac arrest refer to F02.1 and F02.2

NOTES

1. This care map is a guideline to the management of major trauma. Every situation is unique and paramedics should use clinical judgement in management**.** Paramedics will call the Virtual Emergency Care & Transport Resource Service (VECTRS) for trauma bypass and clinical support.

   The sequence of steps in the trauma care may need to be varied. With additional personnel, some interventions can be performed simultaneously with other procedures. Some interventions may be performed during transport (eg. establishing vascular access).

2. With any life-threat, scene time should be kept to the minimum required to stabilize the patient enough for transport to the next level of trauma care.

3. Keep a low index of suspicion for the causes of shock. **A normal blood pressure (BP) does not rule out significant hemorrhage** (table B). The shock index (SI) may be beneficial in determining subtle cases (heart rate / systolic BP).
   - > 0.6 - suspicious for subtle shock
   - > 0.8 - definite significant shock

4. Paramedics may be directed to transport to specific destinations with transfusion capabilities.

5. **DO NOT IMPLEMENT PERMISSIVE HYPOTENSION if an intracranial injury is suspected**

6. Aggressive crystalloid administration can create coagulopathy, dislodge fragile clot, increase bleeding and mortality. In the absence of head injury, mild permissive hypotension should be considered, based on the following age cohorts. Carefully and continuously reassess the patient's level of consciousness (LOC) to monitor cerebral perfusion.
   - Adult = 90 mmHg
   - Adolescent = 80 mmHg
   - Child = 70 mmHg
   - Infant = 60 mmHg

7. Signs of cerebral herniation include a depressed level of consciousness, asymmetrical pupillary response ("blown pupil") and asymmetrical motor response. **Consider securing the airway if the GSC is 8 or less.** Maintaining an end-tidal CO2 level of 35 to 40 mmHg may temporarily reduce intracranial pressure.

8. Adequate analgesia should be considered as necessary (even with some life-threatening injuries) based on the patient's LOC, blood pressure, and respiratory status.

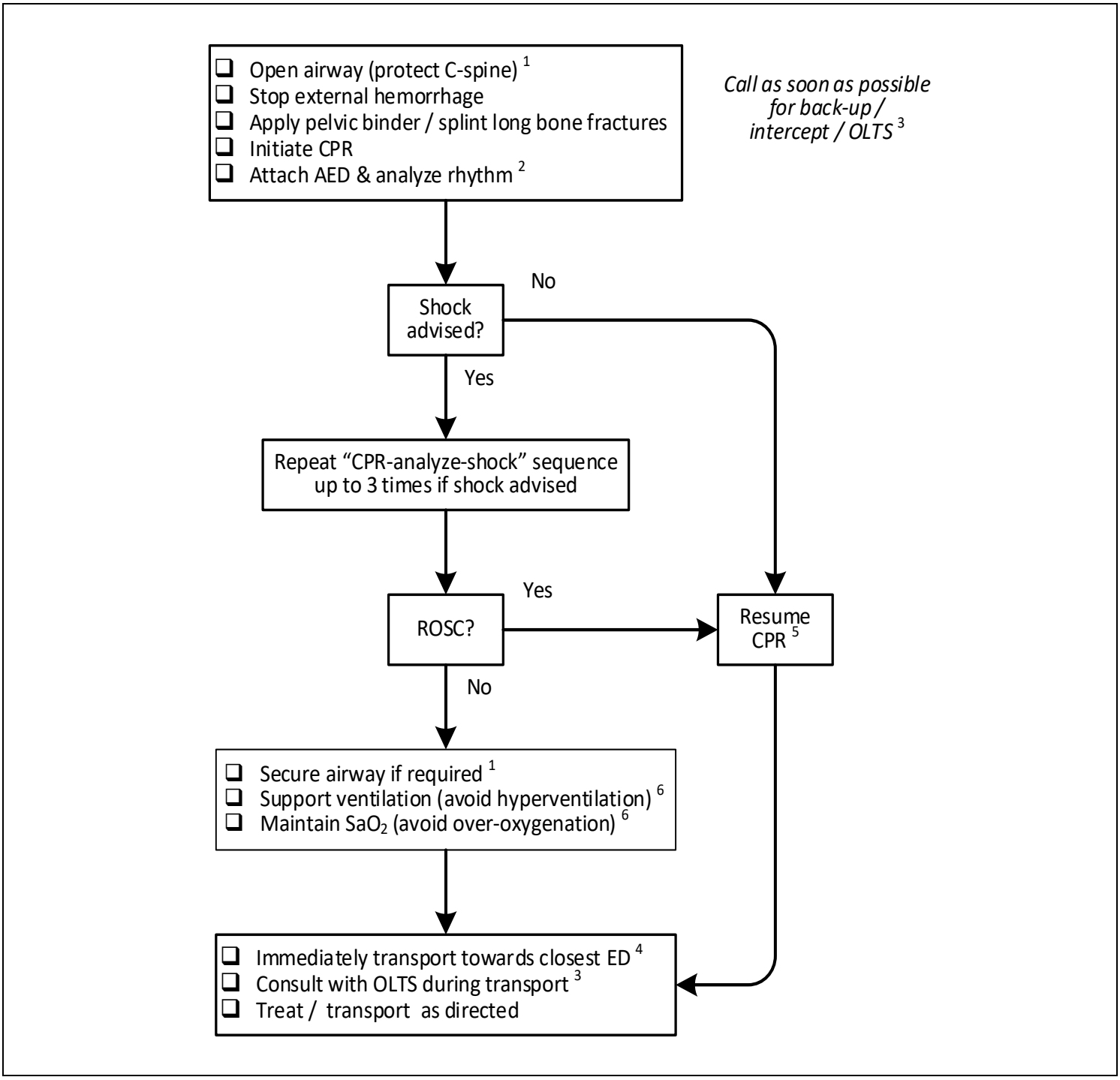
TABLE C: FIELD CARE FOR SPECIFIC INJURIES
IMPALEMENT: Secure the object(s) in place unless restricting safe extrication or interfering with airway management / chest compressions and cannot be cut or otherwise dismantled.
EVISCERATION: Do not attempt to replace contents back into the abdominal cavity. Support large eviscerations with bulky dressings or manually to prevent traction on blood vessels or tissue damage. Bleeding at wound edges should be controlled with direct pressure, avoiding pressure on the exposed contents. Cover with sterile dressings, and cover dressings to minimize heat loss.
PELVIC FRACTURES: Pelvic fractures may cause significant internal bleeding. Unstable fractures increase the volume of the pelvic, potentially allowing uncontrolled hemorrhage into the pelvic cavity. Pelvic binding can reduce internal bleeding by stabilizing any fractures and reducing the volume of the pelvic cavity, potentially allowing for tamponade of bleeding. Pelvic binding should be applied across the greater trochanters of the femurs, not the superior iliac spines (figure 2).
FRACTURE WITH VASCULAR COMPROMISE: The management of limb fractures with vascular compromise should not delay lifesaving maneuvers or emergency transport. A limited attempt at restoring perfusion may be performed if time allows. Check distal circulation before and after the reduction. If resistance is encountered, discontinue, and splint the limb in the position found. If the attempted reduction does not restore circulation, splint in the post reduction position. Do not re-manipulate is this may cause greater vascular damage.
OPEN FRACTURES: Clean exposed bone of gross debris and dress appropriately. Open fractures do not contraindicate necessary reduction if vascular compromise is present.
TRACTION SPLINTS: Do not use with known or suspected pelvic fractures as this may cause further disruption of the pelvic ring. Paramedics must adhere to manufacturer's recommendations for application, monitoring, and removal.
CONTAMINATED WOUND: Lightly brush off loose material from wounds with sterile gauze. Do not scrub. Reinforce dressing as required. Replace dressings if they impede control of bleeding.
AMPUTATION: Do not place severed parts in water or on ice. Gently rinse with sterile saline solution to remove gross debris, wrap in sterile saline soaked gauze and seal in a waterproof container or sealable plastic bag. If available place the container or bag on ice. Transport with the patient
OPEN GLOBE EYE INJURY: Open eye injuries can result from penetrating or blunt trauma. Do not irrigate or apply topical anesthesia. Pressure on the globe may cause extrusion of ocular contents. Protect with a rigid cover that does not contact the globe.
MID-FACIAL OR BASAL SKULL FRACTURES: Do not insert a nasopharyngeal airway (or administer intranasal medication) in a patient with known or suspected facial or basal; skull fractures. Possible cribriform plate injury can directly expose the central nervous system to the nasal cavities.

LINKS
B04.1 - TRAUMA DESTINATION FOR IERHA & SHSS B04.2 - TRAUMA DESTINATION FOR PMH B04.3 - TRAUMA DESTINATION FOR NRHA F02.1 - BASIC TRAUMA ARREST F02.2 - ADVANCED TRAUMA ARREST F04 - SPINAL MOTION RESTRICTION M28 - TRANEXAMIC ACID

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X06 for change
• Links to F02.x - BASIC / ADVANCED TRAUMA ARREST

Shared health Soins communs Manitoba	F02.1 - BASIC TRAUMA ARREST (EMR)	
	All ages	TRAUMA
Version date: 2023-11-11		Effective Date: 2023-01-16 (0700)



INDICATIONS

- Cardiac arrest due to major traumatic injury (for nontraumatic cardiac arrest refer to C01)

CONTRAINDICATIONS

- Health care directive prohibiting resuscitation from cardiac arrest
- Injuries incompatible with survival [7]

NOTES

1. During the COVID pandemic extended personal protective equipment (PPE) is required for all resuscitations. Airway manipulation during resuscitation is an aerosol generation medical procedure (AGMP). Compressions and defibrillation are not.
   - If the patient is known or suspected to be COVID positive, do not perform positive pressure ventilation (PPV). Provide passive oxygenation only with the two-hand or CPAP mask seal (figure 1).
   - If the patient's COVID status is negative and COVID is not reasonably suspected, PPV can be initially provided without a sealed airway. The airway should be sealed as soon as possible.
2. For patients less than 8 years of age or 25 kilograms weight use pediatric pads. If pediatric pads are not available, use adult pads but ensure separation by at least 2.5 cm (consider antero-posterior placement).

   When using an AED in a patient with an implanted cardioverter-defibrillator (ICD) or pacemaker, place the electrodes at least 8 centimeters (3 inches) away from the pulse generator.
3. Contact on-line trauma support (OLTS) as early as possible without delaying resuscitative measures. Consult OLTS before discontinuing resuscitation.

   With the exception of a shockable rhythm from blunt chest trauma, survival from traumatic cardiac arrest is unlikely without *immediate* access to advanced care. However, emergency transport without hope of survival exposes paramedics and the public to unnecessary risk.

   The decision to transport is complex and depends on the nature and severity of the injuries, downtime prior to EMS arrival, the ability to provide and maintain high quality cardiopulmonary resuscitation (CPR), and the transport time to the next level of care.
4. Transport time to the closest emergency department (ED) must be based on safe transport speed and should consider time for egress and loading.
5. Always maintain personal safety when performing CPR during transport. Continue until fatigue ensues or if safety concerns arise. Do not interrupt to reassess unless signs of return of spontaneous circulation (ROSC) occur (eg. spontaneous movement).
6. Hyperventilation may reduce blood flow to the brain. Provide supplemental oxygen to achieve an oxyhemoglobin saturation (SaO_2) of 92% to 98% in adults and 94% to 99% in children under age 10 years.
7. Injuries incompatible with life include decapitation, incineration, transection of the thorax or abdomen, substantial destruction of vital organs (heart, lungs, brain), or separation of vital organs from the body.

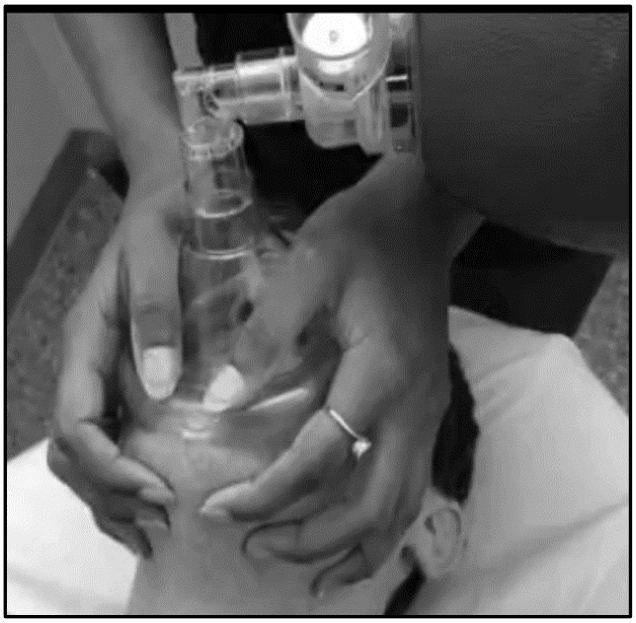
LINKS
• C01 - BASIC CARDIAC ARREST

APPROVED BY	
EMS Medical Director	EMS Associate Medical Director

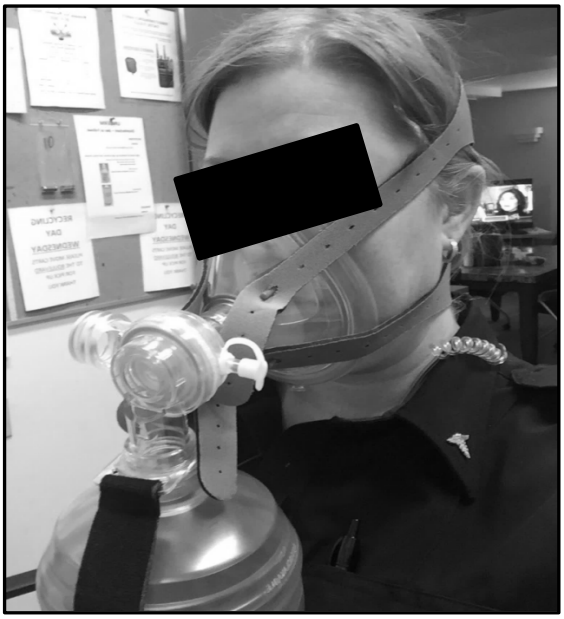
VERSION CHANGES (refer to X06 for change tracking)
• New

FIGURE 1: PASSIVE OXYGENATION WITH BVM & MOUTH / NOSE SEALED

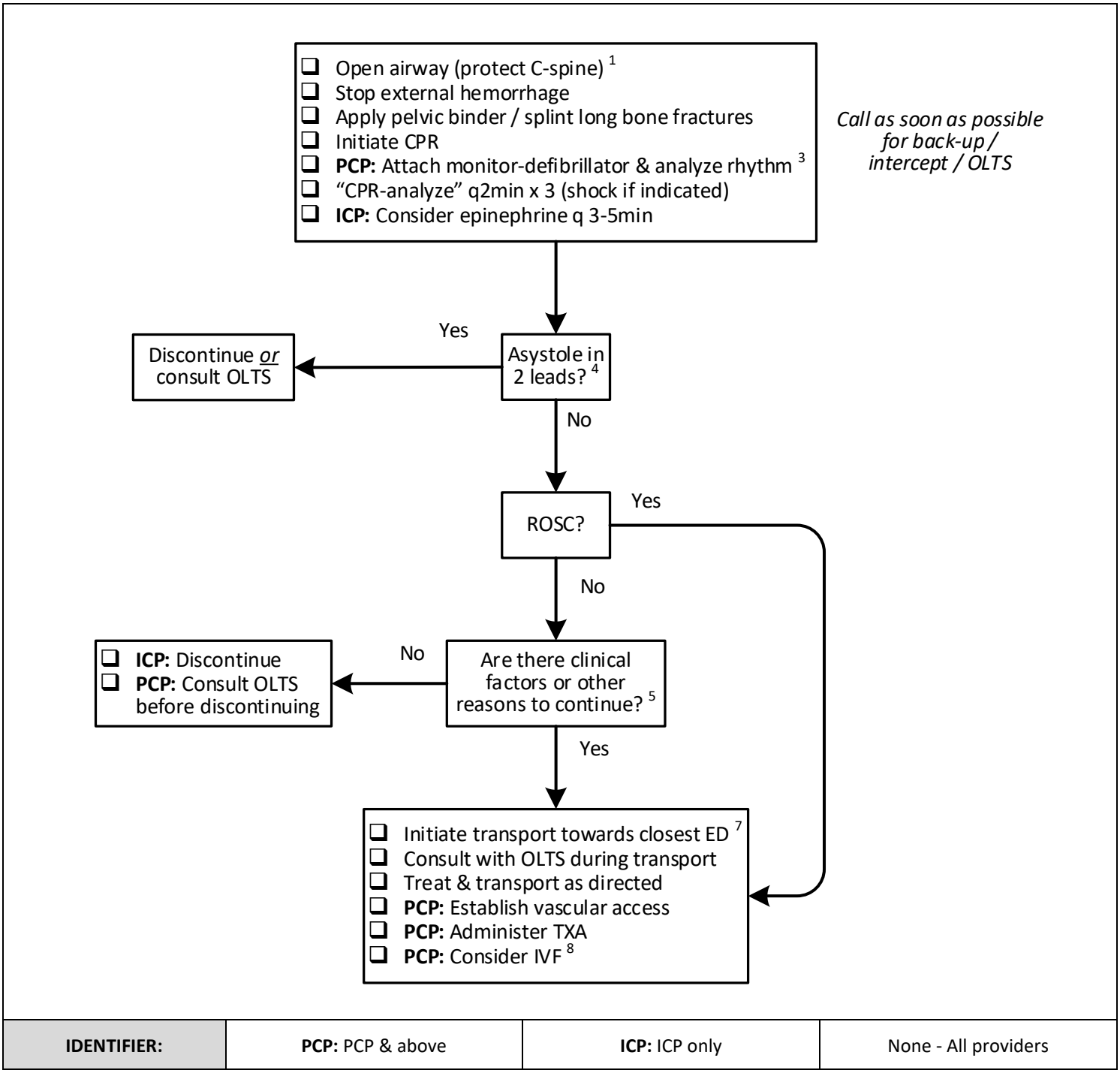
TWO-HAND MASK SEAL



CPAP MASK SEAL



Shared health Soins communs Manitoba	F02.2 - ADVANCED TRAUMA ARREST (PCP & ABOVE)	
	All ages	TRAUMA
Version date: 2023-12-13		Effective Date: 2024-02-13 (0700)



IDENTIFIER:	PCP: PCP & above	ICP: ICP only	None - All providers

INDICATIONS

- Cardiac arrest due to major traumatic injury (for nontraumatic cardiac arrest refer to C02)

CONTRAINDICATIONS

- Health care directive prohibiting resuscitation from cardiac arrest
- Injuries incompatible with survival [9]

NOTES

1. During the COVID pandemic extended personal protective equipment (PPE) is required for all resuscitations. Airway manipulation during resuscitation is an aerosol generation medical procedure (AGMP). Compressions and defibrillation are not.
   - If the patient is known or suspected to be COVID positive, do not perform positive pressure ventilation (PPV). Provide passive oxygenation only with the two-hand or CPAP mask seal (figure 1).
   - If the patient's known to be COVID negative (or COVID is not reasonably suspected) PPV can be initially provided without a sealed airway. The airway should be sealed as soon as possible.
2. If the patient's age is unknown, use visible signs of puberty as the differentiating feature for adolescent and child dosing. For patients less than 8 years of age or 25 kilograms weight use pediatric pads. If pediatric pads are not available, use adult pads but ensure separation by at least 2.5 cm (consider antero-posterior placement).
3. When defibrillating a patient with an implanted cardioverter-defibrillator (ICD) or pacemaker, place the electrodes at least 8 centimeters (3 inches) away from the pulse generator.
4. Traumatic cardiac arrest resulting in **asystole** in universally fatal. Transport is rarely indicated.

   Arrest from trauma most often presents initially with **pulseless electrical activity** (PEA), due to insufficient cardiac filling from severe external or internal blood loss. It will rapidly progress to asystole if uncorrected. Less common causes include tension pneumothorax and pericardial tamponade (appendix B). Prompt identification and correction (while maintaining high-quality CPR) is the priority.

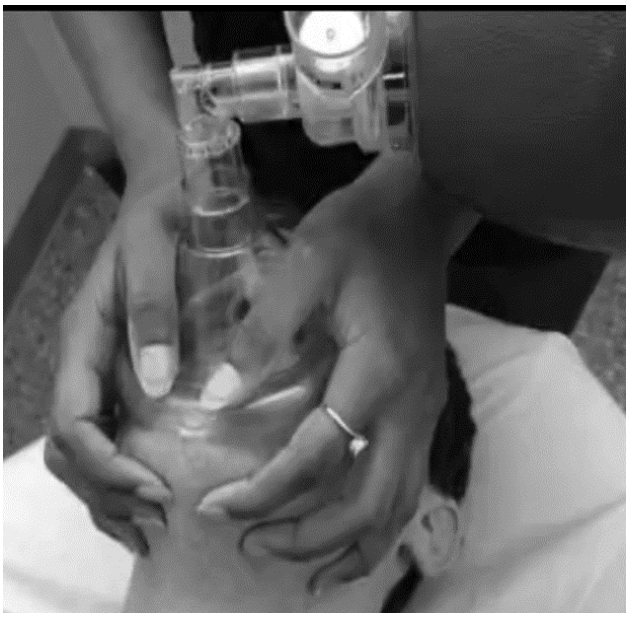
   Ventricular fibrillation (VF) or **ventricular tachycardia** (VT) are uncommon initial rhythms in trauma arrest. However, blunt precordial force can result in VF or VT (without other serious injuries) a phenomenon known as *commotio cordis*. This usually responds to prompt high-quality CPR and rapid defibrillation.
5. With the exception of commotio cordis, survival from traumatic cardiac arrest is very unlikely without *immediate* access to massive transfusion capabilities and surgical care. The decision to transport without return of spontaneous circulation (ROSC) can be complex and depends on the nature and severity of the injuries, the downtime prior to EMS arrival, the ability to provide and maintain high quality cardiopulmonary resuscitation (CPR), and the transport time to a higher level of care. Emergency transport without hope of survival exposes paramedics and the public to unnecessary risk.

   In certain non-clinical circumstances and even with little probability of survival, transporting to a health care facility and deferring the decision about discontinuation to a health care provider with additional training and experience *may* be in the best interest of the patient's family and providers (e.g. pediatric victim, family distress, provider uncertainty).
6. Always maintain personal safety when performing CPR during transport. Continue until fatigue ensues or if safety concerns arise. Do not interrupt to reassess unless signs of ROSC occur (e.g. spontaneous movement).

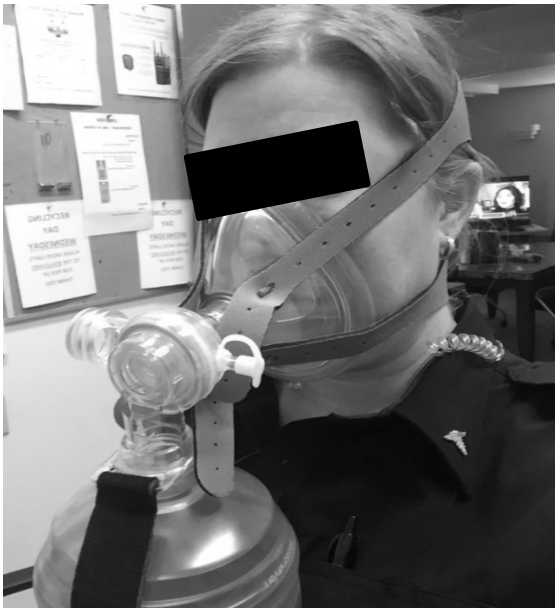
7. Transport time to the closest emergency department (ED) must be based on safe transport speed and should consider time for scene egress and loading.
8. DO NOT IMPLEMENT PERMISSIVE HYPOTENSION IF AN INTRACRANIAL INJURY IS SUSPECTED. Aggressive crystalloid administration can create coagulopathy, dislodge fragile clot, increase bleeding and mortality. In the absence of head injury, mild permissive hypotension should be considered, based on the following age cohorts. Carefully and continuously reassess the patient's level of consciousness (LOC) to monitor cerebral perfusion.
   - Adult = 90 mmHg
   - Adolescent = 80 mmHg
   - Child = 70 mmHg
   - Infant = 60 mmHg
9. Injuries incompatible with survival include decapitation, incineration, transection of the thorax or abdomen, substantial destruction of vital organs (heart, lungs, brain), or separation of vital organs from the body.

FIGURE 1: PASSIVE OXYGENATION WITH BVM & MOUTH / NOSE SEALED

TWO-HAND MASK SEAL



CPAP MASK SEAL



LINKS

- C02 - ADVANCED CARDIAC ARREST
- M05.2 - EPINEPHRINE FOR CARDIAC ARREST

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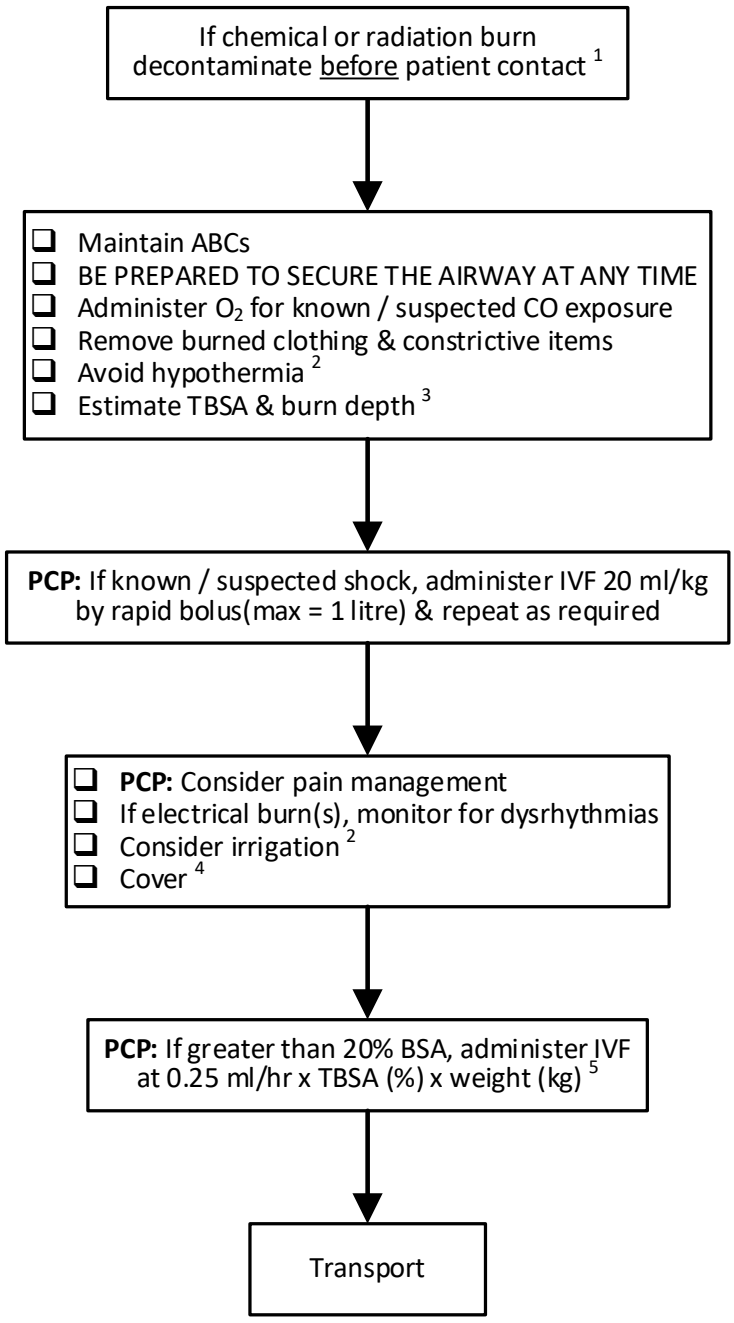
VERSION CHANGES (refer to X06 for change tracking)
• New

APPENDIX A: TRAUMA ARREST QRG *This guide is for dosing only. Refer to the medication documents for additional information required for safe administration.*	
TEN YEARS & OLDER	**LESS THAN TEN YEARS** [2]
DEFIBRILLATION	
• Initial shock @ 120 to 200 J • Use maximum energy if uncertain • Increase the dose with each additional shock	• First shock @ 2 J/kg • Second shock @ 4 J/kg • Administer each additional shock @ 4 to 10 J/kg
EPINEPHRINE (M05.2)	
• 1 mg • Repeat every 3 to 5 minutes as required (q3-5min)	• 0.01 mg/kg (single max dose = 0.5 mg) • Repeat every 3 to 5 minutes as required (q3-5min)

APPENDIX B: INJURIES CAUSING TRAUMATIC CARDIAC ARREST	
• Airway obstruction	• Hypoxemia
• External or internal exsanguination	• Flail chest
• Shock	• Tension pneumothorax
• Intracranial injury with cerebral herniation	• Open pneumothorax

Shared health Soins communs Manitoba	F03 - MAJOR BURNS	
	All ages	TRAUMA
Version date: 2023-08-06		Effective Date: 2023-12-19 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• Thermal, chemical, electrical and radiation burns

CONTRAINDICATIONS
• Not applicable

NOTES
1. Other agencies or services may be required to remove the patient from danger before EMS can initiate assessment and treatment. Local technical personnel may be able to provide information for the safe handling of contaminated persons. **Manitoba Conservation – Environmental Operations: Dangerous Goods Emergency Response (1-204-944-4888) is available 24 hours every day to provide appropriate information, resources, and personnel.**
2. Hypothermia can rapidly occur from prolonged or large-area irrigation, as well as from exposure, or the administration of ambient temperature IV fluids or oxygen.
3. Second degree (partial thickness) and third degree (full thickness) burns greater than 20% burn surface area (BSA) are potentially life-threatening injuries (appendix B).
4. Burns should be covered with clean dry dressings, sheets, or commercial burn dressings. Do not break blisters.
5. After correcting for shock, patients with second degree (partial thickness) and third degree (full thickness) burns greater than 20% body surface area (BSA) should intravenous fluid (IVF) administered according to the *Parkland Formula* (appendix A) with frequent reassessment of ongoing needs.

LINKS
• Not applicable

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X06 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

APPENDIX A: PARKLAND FORMULA FOR ESTIMATING FLUID REQUIREMENTS

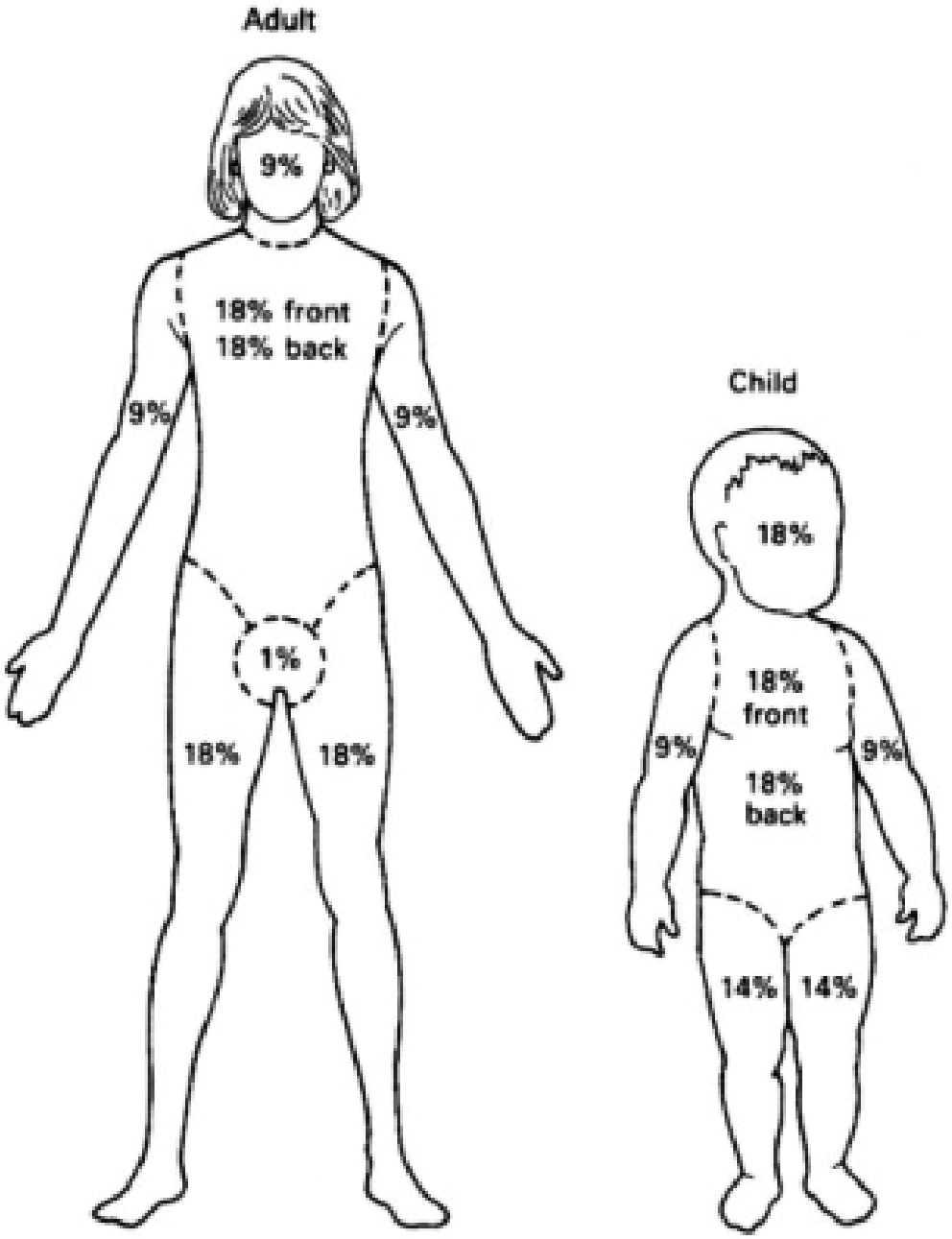
Daily fluid requirements = 4 ml X total burn surface area (%) X bodyweight (kg)

- This volume is in addition to any losses from hemorrhage or pre-existing hypovolemia.
- The daily requirement begins from the time of injury, not the time of treatment.
- The first half of the volume is given over 8 hours (0.25 ml/hr x TBSA x weight). The second half is given over 16 hours.

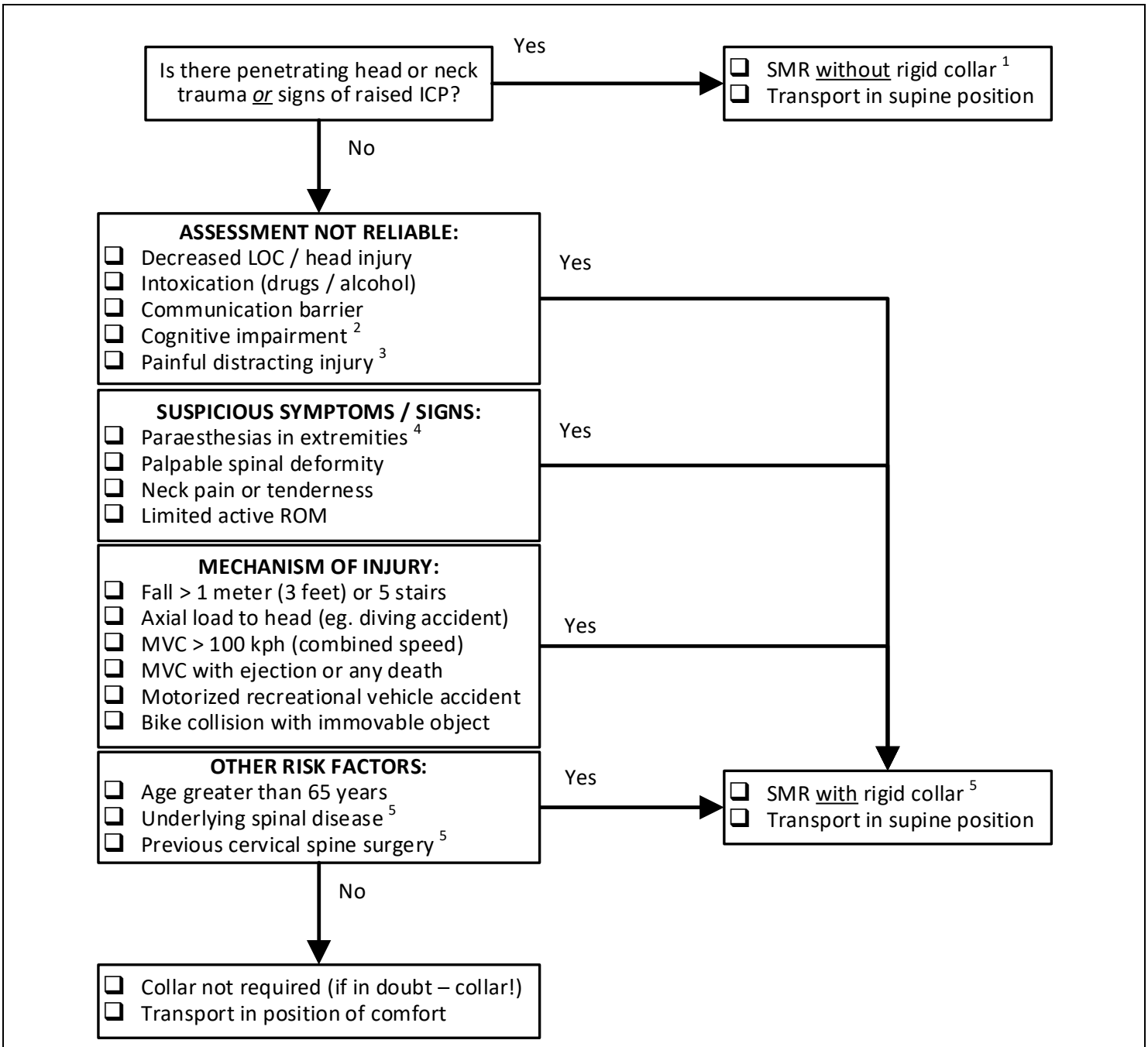
NOTE: This is only an initial estimate and can be affected by other factors such as age, comorbidities, presence of airway or pulmonary burns, and concomitant traumatic injuries. Adjustments may be needed based upon the patient's response.

EXAMPLE: A 90 kg patient sustained 35% burns 3 hours prior to EMS arrival. The initial estimate of his daily fluid requirement is 12.5 litres. Half must be given in the first 8 hours (800 ml/hr) and the other half over the next 16 hours (400 ml/hr). However, he is already 3 hours behind, so this volume should be administered in the next 21 hours (900 ml/hr x 7 hr, then 450 ml/hr x 14 hr). However, all these numbers are only an estimate and continuous reevaluation is required.

APPENDIX B: ESTIMATING TOTAL BURN SURFACE AREA - TBSA (RULE-OF-NINES)



Shared health Soins communs Manitoba	F04 - SPINAL MOTION RESTRICTION	
	All ages	TRAUMA
Version date: 2023-08-06		Effective Date: 2023-12-19 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• Any patient with significant trauma will be assessed as whether they require spinal motion restriction (SMR).

CONTRAINDICATIONS
• Rigid cervical collars may increase mortality from penetrating head & neck injuries and may cause an increase in intracranial pressure (ICP).

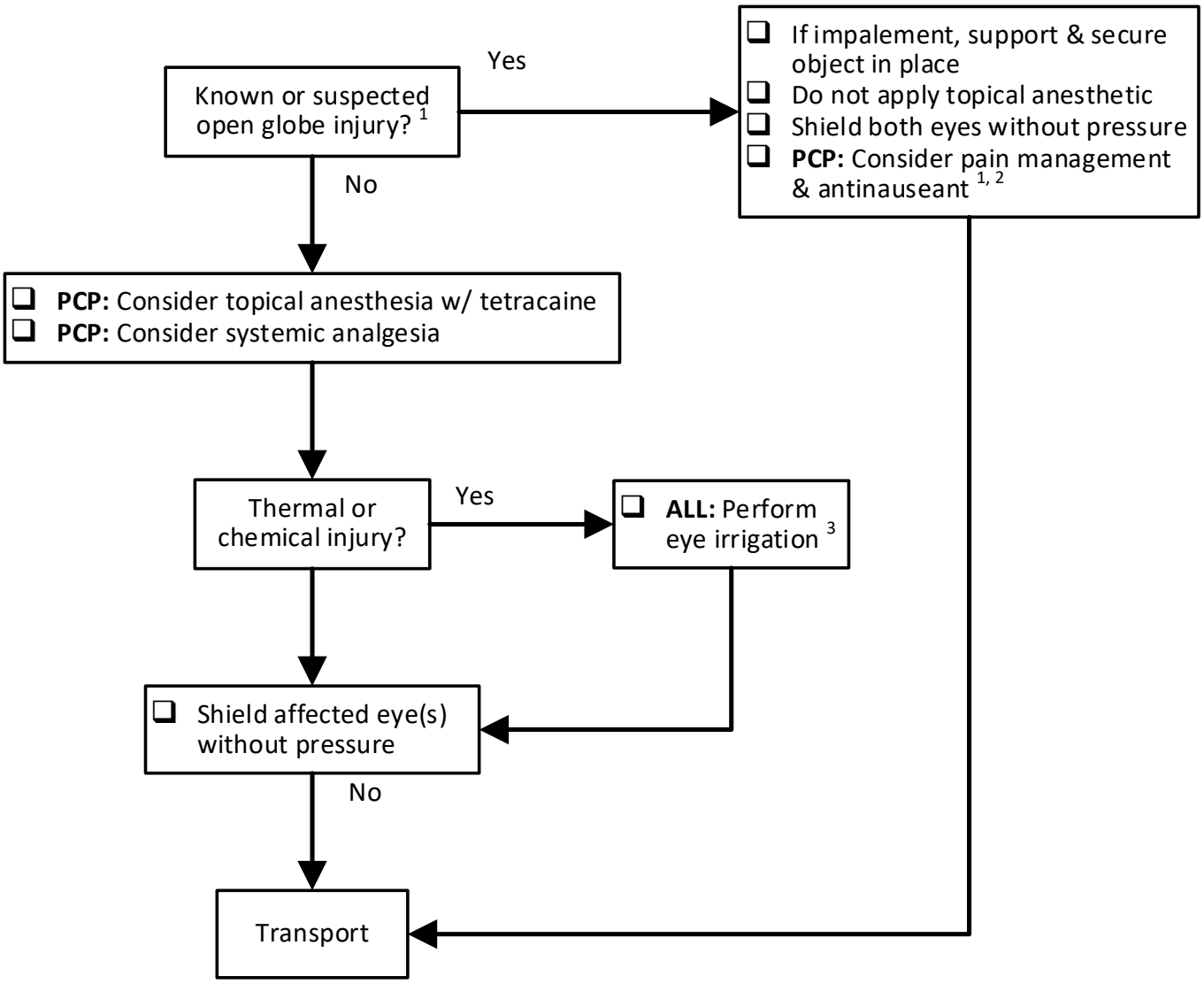
NOTES
NOTE: Long spine boards are not necessary to properly limit spinal movement. They may be helpful for short-term use for extrication, egress, or transfer onto a stretcher. Prolonged or inappropriate use of long spine boards may cause injury 1. Rigid cervical collars are associated with an increased mortality rate with these injuries. 2. Acute changes in cognition may be seen with concussion or post-ictal states. 3. Be especially cautious with extensive burns and pelvic / long bone fractures. 4. Neurological symptoms such as paraesthesias are concerning for spinal injury even, in the absence of objective signs. 5. Underlying diseases including ankylosing spondylitis, rheumatoid arthritis, and advanced osteoarthritis increase the risk of spinal injury, including from the immobilization. DO NOT FORCE THE PATIENT INTO A RIGID COLLAR!

LINKS
• NONE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X06 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

Shared health Soins communs Manitoba	F05 - EYE TRAUMA	
	All ages	TRAUMA
Version date: 2023-08-06		Effective date: 2023-12-19 (0700)



IDENTIFIER:	EMR: EMR only	PCP: PCP & ICP	ICP: ICP only	None - All providers

INDICATIONS
• Blunt or penetrating eye trauma

CONTRAINDICATIONS
• Not applicable

NOTES
1. Open globe injuries may result from blunt as well as penetrating eye trauma. If there is any suspicion of open globe injury, do not place anything in the eye (do not irrigate) or apply direct pressure. Do not administer intranasal fentanyl on the side of the open globe injury as it may back up into the eye through the nasolacrimal duct. 2. Open globe injuries can cause nausea and vomiting. The act of vomiting can cause substantial increases in intraocular pressure. 3. **EYE IRRIGATION:** a. Consider providing topical or systemic analgesia prior to irrigation. b. For chemical eye injuries, irrigate with at least 1000 ml sterile 0.9% saline solution per injured eye. **c.** Do not apply a Morgan lens (figure A) with alkali or caustic chemical eye injuries. Nasal cannulae (appendix B) taped to the patient's forehead can be used to irrigate one or both eyes.

LINKS
M12 - TETRACAINE

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X06 for change tracking)
• Identifier legend at bottom of flow chart replaces work scope statement in header

FIGURE A: IRRIGATION WITH A MORGAN LENS

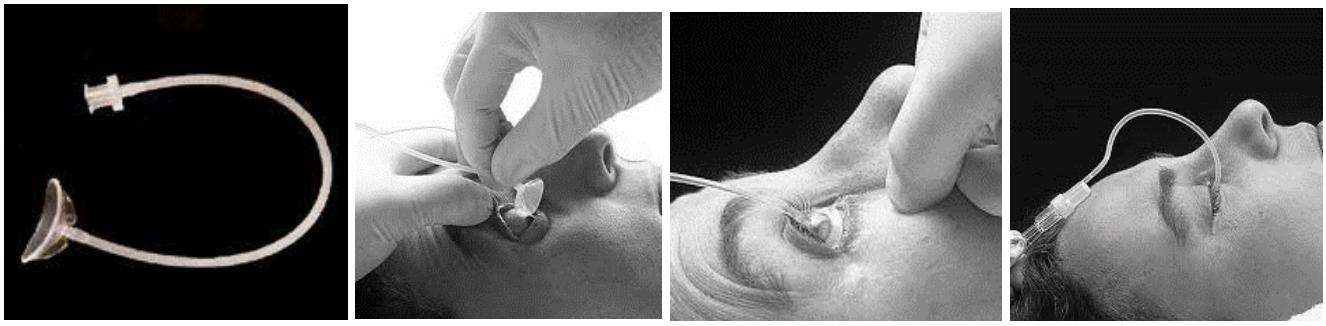


FIGURE B:
IMPROVISED IRRIGATION WITH NASAL PRONGS

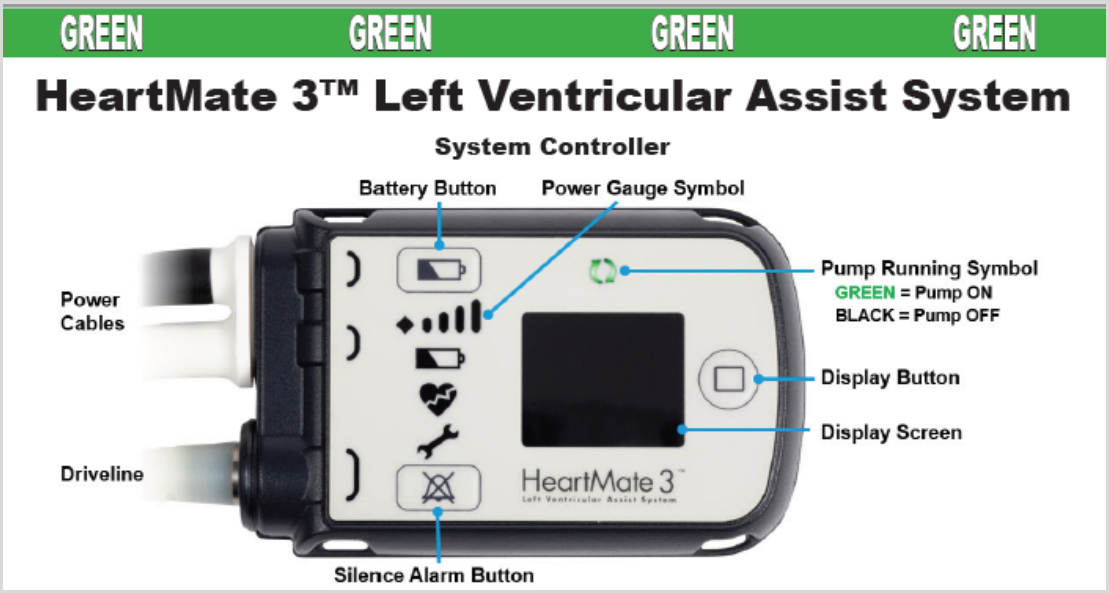
Shared health Soins communs Manitoba	H01 - PEDIATRIC VITAL SIGNS	
	Version date: 2019-03-13	REFERENCE

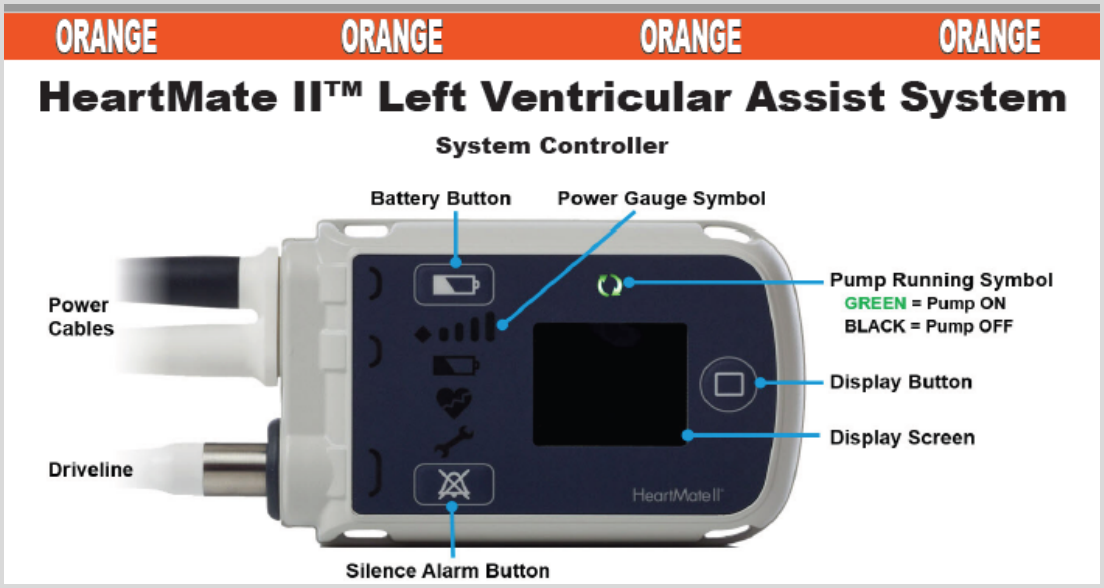
Hypotension is defined by SBP less than 70 + (age x 2)					
Age	**Respiratory Rate (breaths / min)**	**Heart Rate (beats / min)**	**Average Systolic BP (mmHg)**	**Average Diastolic BP (mmHg)**	**Minimum Systolic BP (mmHg)**
0 – 1 month	25 - 60	125 - 185	45 - 80	35 - 55	
1 – 3 months	25 - 55	120 - 180	65 - 85	35 - 60	
3 – 6 months	25 - 55	110 - 180	70 - 90	35 - 65	
6 – 12 months	20 - 50	105 - 175	80 - 100	40 - 65	70
1 – 2 years	20 -50	95 - 155	80 - 105	40 - 70	72 - 74
2 – 3 years	20 - 40	90 - 150	80 - 110	40 - 75	74 - 76
3 – 5 years	20 - 30	75 - 140	80 - 115	40 -75	76 - 80
5 – 7 years	20 - 25	65 - 135	85 - 115	40 -80	80 - 84
8 – 10 years	18 - 20	60 - 130	90 - 120	45 - 80	86 - 90
11 – 13 years	15 - 18	60 - 130	95 - 120	45 - 80	92 - 96
14 to 18 years	12 - 15	60 - 120	100 - 120	50 - 80	98 - 116
These are approximate values only and there is considerable variation within and overlap between each age category. Clinical judgment is required to correctly interpret pediatric vital signs.					

Shared health Soins communs Manitoba	H02- LEFT VENTRICULAR ASSIST DEVICE	
	Version date: 2022-03-25	TRAINING REFERENCE

*The SBH Cardiac Sciences Program currently uses the Abbot **Heartmate III (**green tag) ventricular assist device. Paramedics may occasionally encounter a patient with an older **Heartmate II** (orange tag) unit.*

2020/21 ICCAC Emergency Guide pages 1 - 14





EMERGENCY GUIDE

2020-2021

International Consortium of Circulatory Assist Clinicians

This guide was created in 2008 by the innovation of VAD Coordinators from some of the largest and most successful VAD implantation hospitals in the United States. ICCAC has ensured that this document continues to be a current resource for not only emergency medical services but to all healthcare workers providing care to the mechanical circulatory support patient population. The purpose is to be a quick emergency guide and should not replace the manufacturers' Instructions For Use as the primary source of information for each device listed in this guide.

Questions and Answers
MECHANICAL CIRCULATORY SUPPORT

Mechanical Circulatory Support Devices (MCS) are heart pumps that move blood from the heart to the body. They are temporary or permanent devices that either supplement or replace the action of a failing heart. MCS devices implanted are assisting the left ventricle (LVAD), the right ventricle (RVAD), or both ventricles (BiVAD) and the total heart (Total Artificial Heart – TAH). They consist of two major categories: Pulse generating (pulsatile) and pulseless devices (non-pulsatile/continuous flow). Patient management varies greatly between the two device categories.

Pulsatile or Non-pulsatile

Pulse generating devices have a chamber that fills with blood and ejects the blood similar to the rhythmic action of the human heart. These devices replace the majority of the heart and move the full amount of blood the patient needs. The Total Artificial Heart pump is a pulse generating device. Non-pulsatile or continuous flow devices use a motor at a fixed speed leading to a constant ejection of blood to the body. This is the reason patients with continuous flow VADs often lack a pulse upon palpation. The most common VADs are non-pulsatile/continuous flow devices.

What is a VAD?

A ventricular Assist Device (VAD) is an implantable mechanical heart pump that helps to pump blood from the lower chambers of the heart to the rest of the body in patients with advanced heart failure. The device helps move partial or full amount of blood meeting the patient needs. These devices can be attached to the Left (LVAD) or Right (RVAD) ventricles of the heart. Most patients have an LVAD and less common are RVADs and BiVADs (both left and right or Biventricular support).

What are the parts of a VAD?

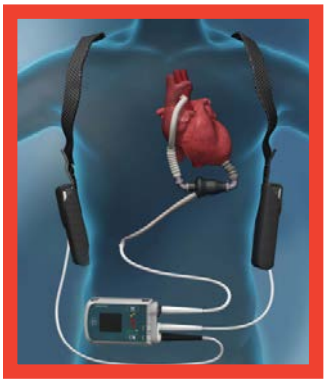
All VADs have at least 4 components. (1) A heart pump unit consisting of a short tube placed inside the ventricle pulling blood thru the pump and out a tube, delivering blood to the body's great vessel; (2) A power cord called a driveline that exits the abdomen and connects to a controller and power source; (3) A controller that displays information; (4) A power source.

What does the controller do?

The controller is a computer that operates the heart pump. It provides messages and audible alarms to help monitor the pump. It gives information about pump performance such as blood flow through the pump (L/min), pump speed (RPM) and the amount of power consumed (Watts). It also gives warnings and alarms if there is an alert/problem with the pump or with the power source, such as low battery or low flow.

What is the power source?

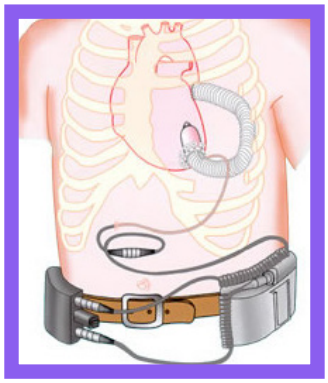
All VADs can be powered by two power sources: rechargeable batteries or AC (electricity) power. Batteries are used when patients are active throughout the day and often are kept in a holster, vest or belt for safety. AC power is recommended when the patient is planning to remain stationary. AC power should NOT be used when transporting the patient.



HEARTMATE II Page 4

HEARTMATE 3 Page 9

HEARTWARE HVAD Page 13



JARVIK 2000 Page 18

What is a TAH?

A Total Artificial Heart (TAH) is a mechanical device that replaces the two lower ventricles of the heart. Tubes connect the TAH to a power source that is outside the body. The TAH then pumps blood through the heart's major artery to the lungs and the rest of the body. This is used for people who have inadequate function of both ventricles (biventricular failure).

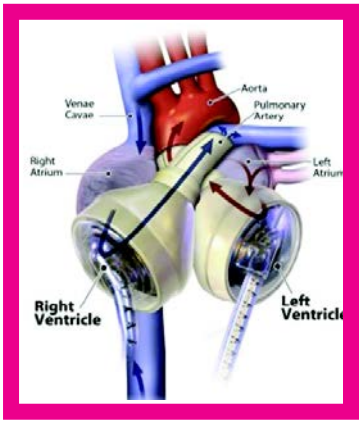
What are the parts of TAH?

The TAH has 3 components. (1) A pump assembly consisting of 2 short tubes attached to the top of the heart and 2 chambers that fill and empty using air that pushes and pulls a membrane back and forth; (2) Air tubes that exit the body and attach to a console; (3) A power source.

What is the power source?

The TAH uses a mobile console called a Freedom Driver when patients are ambulatory. The console is powered by two batteries or AC (electricity) power. The batteries must be well charged before moving the patient and the AC plug should be brought when transporting.

The devices in this MCS Emergency Guide are color coded for quick identification. Patients may have a color matching tag or identifier on their equipment or equipment bag. Patients will also have their primary VAD team contact information for an important resource.



TOTAL ARTIFICIAL HEART (TAH) Page 25

Patient Management For VADs

1. Treat the patient and follow your protocols. Do not focus only on the device. Most patients do not have a primary pump malfunction. Common MCS patient problems that arise are stroke, bleeding disorders (GI, nose bleeds), arrhythmias, dehydration and right heart failure.

2. Assess the patients airway and intervene per your protocol.

3. Auscultate heart sounds to determine if the device is functioning. If it is continuous flow device, you should hear a "humming sound".

4. Assess vital signs. Non-pulsatile or continuous flow devices provide continuous blood flow from the heart to the aorta. This continuous flow results in a narrow arterial pulse pressure. This means it may be difficult to obtain a pulse or blood pressure reading which may be a normal state for a continuous flow device patients. To obtain a blood pressure an automated cuff or doppler method can be used. If unable to obtain with automated cuff use the mean BP with a doppler (first sound you hear – MAP). Rely on other methods to assess perfusion e.g. mental status, skin color, capillary refill. The device flow shown on the controller display reflects the patient's cardiac output.

5. Start IV if indicated.

6. Assess the device for device information and alarms located on the controller display.

7. Intervene appropriately based on the type of alarm. See specific device alarm guides on the pages that follow.

8. Refer to the patient's medication list. They are typically, but not always, on anticoagulation and antiplatelet therapy.

9. Call the VAD Center's 24 hour emergency number on the patient's contact list, controller/equipment, or emergency bag for assistance in the management of the patient and transportation determination and location.

10. **Bring all of the patients equipment.**

11. **Bring the significant other if possible to act as a expert on the device in the absence of consciousness in the patient.**

HeartMate II™ Left Ventricular Assist System

1. **Can I do CPR?**

   Yes, in the right clinical scenario. Chest compressions may pose a risk of dislodgement - use clinical judgment. If compressions are administered, confirm function and positioning of the pump.

2. **Can the patient be defibrillated while connected to the device?**

   Yes you can defibrillate, and you do not have to disconnect anything.

3. **Can this patient be externally paced?**

   Yes.

4. **What type of alarm occurs in a low flow state?**

   A red heart alarm indication and steady audio alarm will sound if less than 2.5 lpm. Can give a bolus of normal saline and transport to a VAD center.

5. **Can I change the speed of the device?**

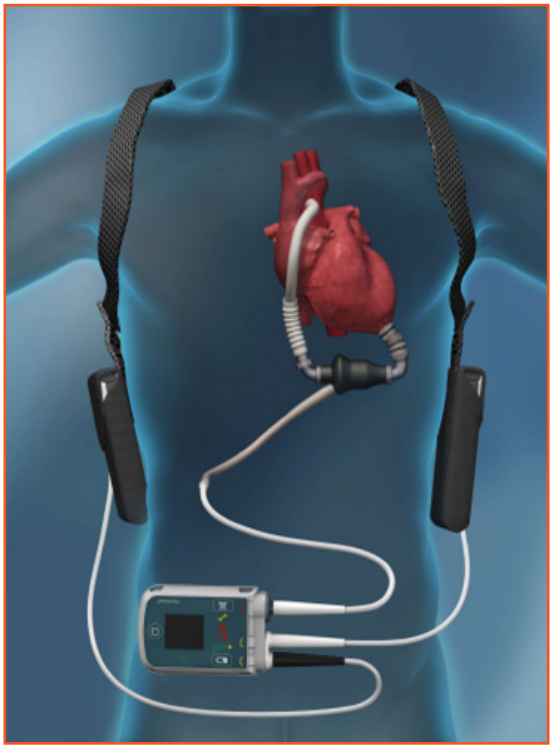
   No, it is a fixed speed.

6. **Does the patient have a pulse with this device?**

   Likely they will not because it is a continuous flow device, however some patients may have a pulse.

7. **What are acceptable vital sign parameters?**

   MAP 70 - 90 mm Hg with a narrow pulse pressure.

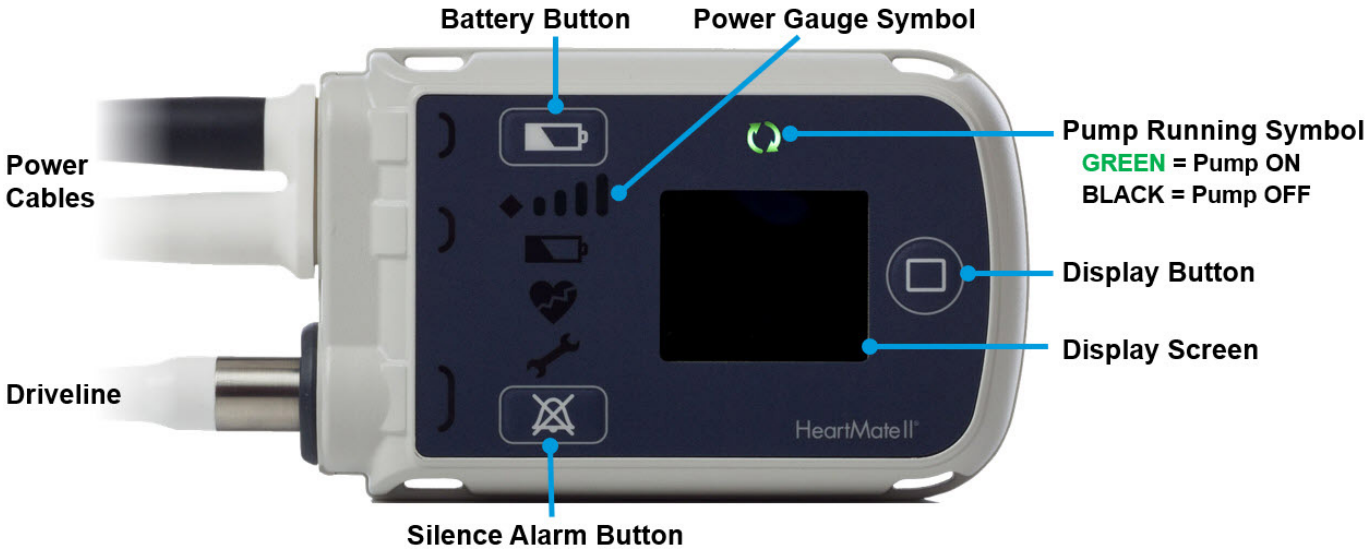


Frequently Asked Questions

- May not be able to obtain cuff pressure (continuous flow pump).
- Pump connected to driveline exiting patient's abdominal area and is attached to controller which runs the pump.
- Pump does not affect ECG.
- All ACLS drugs may be given.
- No hand pump is available.
- A pair of fully charged batteries last approximately 10 - 12 hours.
- Avoid pulling, twisting, or kinking the driveline when strapping the patient to a stretcher.
- Any emergency mode of transportation is ok. These patients are permitted to fly.
- Be sure to bring **ALL** of the patient's equipment with them.

HeartMate II™ Left Ventricular Assist System

System Controller



Changing Batteries

WARNING: At least one controller power cable must be connected to a power source AT ALL TIMES. Do not remove both batteries at the same time or the pump will stop.

- Obtain two charged batteries from patient's accessory bag or battery charger. The charge level of each battery can be assessed by pressing the button on the battery. Fully charged batteries will display 5 lights. (Figures 1 and 2)

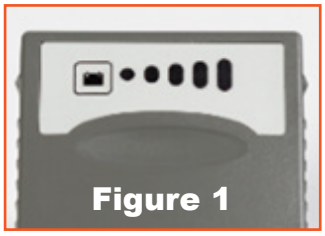


Figure 1

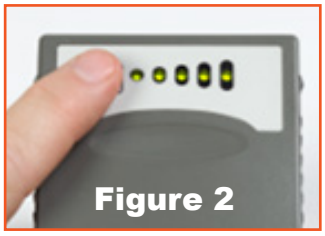


Figure 2

- Check the power level on the batteries, replace the battery with the fewest lights first. Remove only ONE battery from the clip by pressing the release button on the clip to unlock the battery. (Figure 3)

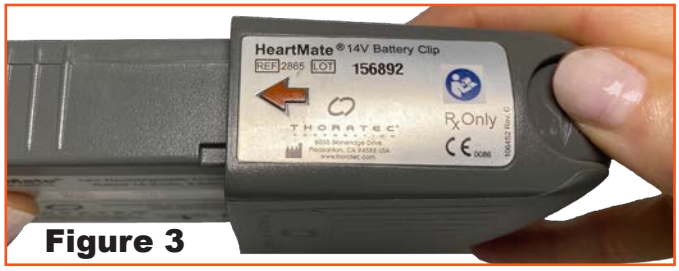


Figure 3

- Controller will start beeping and flashing yellow symbols and will read **CONNECT POWER** on the front screen.

- Insert a new, fully charged battery into the empty battery clip by aligning the **RED** arrows on the battery and clip (Figure 4). The battery will click into the clip. Gently tug on battery to ensure connection. If the battery is properly secured, the beeping and yellow flashing will stop.


Figure 4

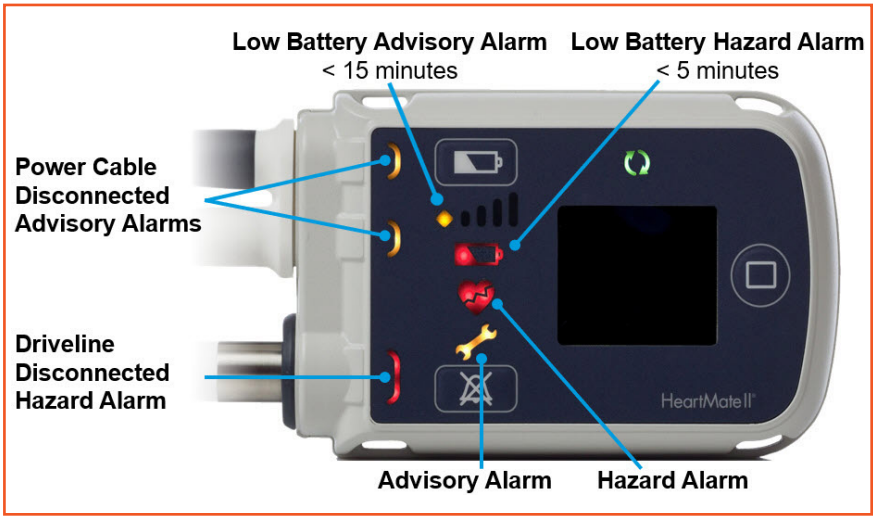
- Repeat previous steps with the second battery and battery clip.

Troubleshooting HeartMate II™ LVAS

Alarms: Emergency Procedures

When an alarm occurs:

- Contact the Implant Center for direction when possible.
- Check alarm messages on controller display screen.
- Check if pump is running:
- Allow care providers trained on LVAD emergencies to remain with the patient.



When the Pump Has Stopped

- Check the driveline and power cable connections to the controller. Fix any loose connections to restart the pump.
- If the pump does not restart and the patient is connected to batteries replace the current batteries with a new, fully-charged pair. (*see Changing Batteries section on previous page*)
- If pump does not restart, change controllers if directed by implant center. (*see Changing Controllers on next page*)
- Be sure to bring ALL of the patient's equipment with them.

HAZARD ALARMS		Continuous Audible Tone
Low Flow :03 + Call Hospital Contact :07	Pump is off.	See above, when pump has stopped
	Pump flow is < 2.5 lpm.	Ensure that a power source is connected to the controller. Evaluate the patient for low flow - treat the cause. Assess volume status, hypertension, arrhythmia, right heart failure, etc.
Connect Driveline :02	Driveline disconnected.	Immediately reconnect Driveline to the controller. Check modular cable connection.
Connect Power Immediately :05 + Backup Battery :01	Both power cables are disconnected.	Immediately connect to batteries or the Mobile Power Unit.
Low Battery :06 + Replace Power :02	Low Battery Power < 5 min. remaining.	Immediately replace batteries or switch to the Mobile Power Unit.

ADVISORY ALARMS		Intermittent Audible Tone
Low Battery :06 + Replace Power Immediately :02	Low Battery Power <15 min. remaining.	Immediately replace batteries or switch to the Mobile Power Unit.
Connect Power :04	A power cable is disconnected.	Reconnect the power cable to power.
Check display for alarm type.		Call VAD Coordinator at implant center for direction.

Troubleshooting HeartMate II™ LVAS

Changing the System Controller

Step 1: Have the patient sit or lie down since the pump will momentarily stop during this procedure.

Step 2: Place the replacement Controller within easy reach, along with the batteries/battery clips. The spare Controller is usually found in the patient's travel case.

Step 3: Attach the battery clips to the replacement controller by lining up half circles, firmly pushing together, and tightening connector nut. Insert the batteries into the clips by aligning the **RED** arrows.

Step 4: On the back of the replacement controller, slide the safety lock so the red release button is fully visible. Repeat this step on the original controller.

Step 5: Disconnect the drive-line from the original controller by pressing the red release button and pulling it out. The pump will stop and an alarm will sound. **Note:** The alarm will continue until the original controller is turned off. You can silence the alarm by pressing the silence alarm button.

Getting the replacement controller connected and the pump restarted is the first priority!

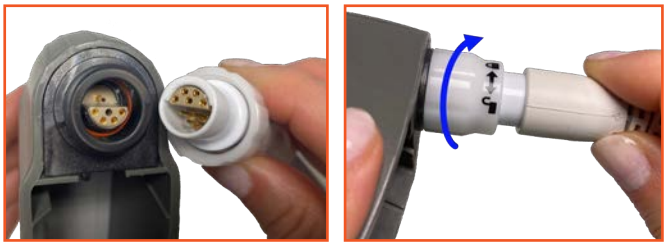
Step 6: Connect the replacement Controller by aligning the YELLOW ARROWS on the driveline and replacement Controller and firmly pushing the driveline into the replacement controller. The pump should restart, if not complete the following steps:

- Firmly press the Silence Alarm or Battery Button to restart the pump.
- Check the power source to ensure that power is going to the controller.
- Ensure the driveline is fully inserted into the socket by gently tugging on the metal end. **DO NOT** pull the driveline.

Step 7: After the pump restarts, slide the safety lock on the new controller so the red release button is fully covered. If unable to close the safety lock into fully locked position, gently push the driveline into the controller to ensure proper connection. Retry to close safety lock.

Step 8: Disconnect power from the original Controller.

Step 9: Hold down battery symbol for 5 full seconds to turn off the original controller.



Step 3

Step 4

Step 7

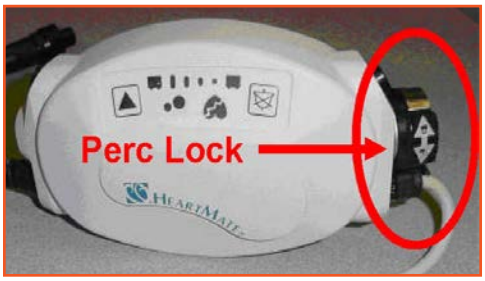
Step 5

Step 6

Step 9

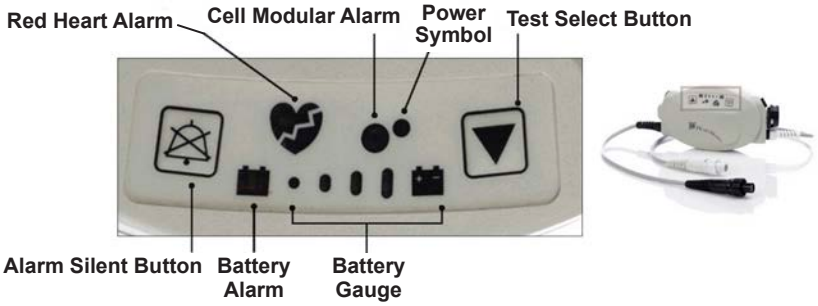
HeartMate II™ Left Ventricular Assist System

The following information applies to the original controller version called External Peripheral Controller (EPC). Some patients have this controller.



Driveline Connection: The Perc Lock must be "unlocked" in order for the driveline to be removed in a controller exchange. The Perc lock remains in locked position once the driveline has been fully inserted.

External Peripheral Controller (EPC)



2 MODES: ON, OFF

On: Driveline+Power source connected.

Off: No driveline or power source connected.

CELL MODULE BATTERY

No backup battery. The cell module battery powers an audible tone if EPC is removed from power while the driveline is connected. The cell module battery is supplied STERILE.

EVENT LOGGER

EPC does not include date/time records in event history. EPC can store 120 events.

GREEN POWER SYMBOL

Green light only mead that the controller is receiving power. Listen over the pump pocket for confirmation that the pump is running.

CONTROLLER BUTTONS

Alarm Silence Button: Displays the battery fuel gauge. Also silences hazard alarms for 2 minutes and advisory alarms for 4 hours.

Test Select Button: Activates a self test when held for 3 seconds.

Note: EPC does not include a display button or user interface screen. The Display Module is used to view pump parameter and alarm events.

SELF TEST

Press and hold the Test Select Button for 3 seconds.

LOW POWER

Yellow Battery Symbol: Displayed when only 15 minutes of external power is remaining.

Red Battery Symbol: Displayed when only 5 minutes of external power is remaining.

POWER SAVER MODE:

Entered when the battery voltage falls to a critically low level. Pump Speed is reduced to 8000 RPM.

STARTING THE PUMP

>8000 RPM: Pump starts automatically.

<8000 RPM: Start pump by pressing Alarm Silence Button or Test Select Button on EPC.

SYSTEM MONITOR EVENT HISTORY SCREEN

PI Event:

System Information:

COMPATIBILITY

System Monitors I and II, Power Module, Power Base Unit (PBU), Power Module Patient Cable (12 Volt and 14 Volt), 14 Volt Lithium-ion Batteries and Battery Clips, 12 Volt SLA and NiMH Batteries and Clips.

ALARMS

For a review of alarms and their meanings, reference the HeartMate II Alarms for Clinicians, Item 103851. Note that EPC does not include Driveline fault detection.

A battery clip can be attached to the EPC controller by lining up the half moons and gently pushing. Batteries can be attached to the battery clip by aligning the RED arrows on the battery and clip.

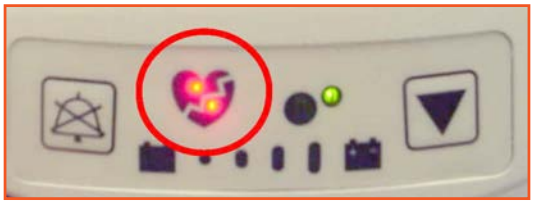
External Peripheral Controller (EPC): A percutaneous lock is located on the side of the controller.

Unlock

Locked

Alarms: Emergency Procedures

Red Heart Flashing Alarm: This may indicate a Low Flow Hazard. Check patient--the flow may be too low. If patient is hypovolemic, give volume. If patient is in right heart failure-- treat per protocol. If the pump has stopped check connections, batteries and controllers as instructed on page 5.



Yellow or Red Battery Alarm: Need to Change Batteries. See changing batteries section on page 5.

HeartMate 3™ Left Ventricular Assist System

1. **Can I do CPR?**

   Yes, in the right clinical scenario. Chest compressions may pose a risk of dislodgement - use clinical judgment. If compressions are administered, confirm function and positioning of the pump.

2. **Can the patient be defibrillated while connected to the device?**

   Yes you can defibrillate, and you do not have to disconnect anything.

3. **Can this patient be externally paced?**

   Yes.

4. **What type of alarm occurs in a low flow state?**

   A red heart alarm indication and steady audio alarm will sound if less than 2.5 lpm. Can give a bolus of normal saline and transport to a VAD center.

5. **Can I change the speed of the device?**

   No, it is a fixed speed.

6. **Does the patient have a pulse with this device?**

   Likely they will not because it is a continuous flow device, however some patients may have a pulse.

7. **What are acceptable vital sign parameters?**

   MAP 70 - 90 mm Hg with a narrow pulse pressure.

FAQs

- Pump has “artificial pulse” created by rapid speed changes in the pump. This can be heard when auscultating the heart and differs from other continuous flow devices.
- May not be able to obtain cuff pressure (continuous flow pump).
- Pump connected to driveline exiting patient’s abdominal area and is attached to controller which runs the pump.
- Pump does not affect ECG.
- All ACLS drugs may be given.
- A pair of fully charged batteries lasts up to 17 hours.
- Any emergency mode of transportation is ok. These patients are permitted to fly.
- Avoid pulling, twisting, or kinking the driveline when strapping the patient to a stretcher.
- Be sure to bring **ALL** of the patient’s equipment with them.

The HeartMate 3™ LVAD has a modular cable connection near the exit site of the driveline (Figure 1). This allows a damaged driveline to be quickly replaced (if damage is external).

- When disconnecting a driveline, NEVER use the modular cable connection.
- If the modular cable requires replacement, it must be done at and by the implanting center. Patients are not given a backup modular cable.
- If the connection is loose, a yellow line at the connection will be showing. If the line is visible, turn the connector in the locked direction. It will ratchet and stop turning once tight.

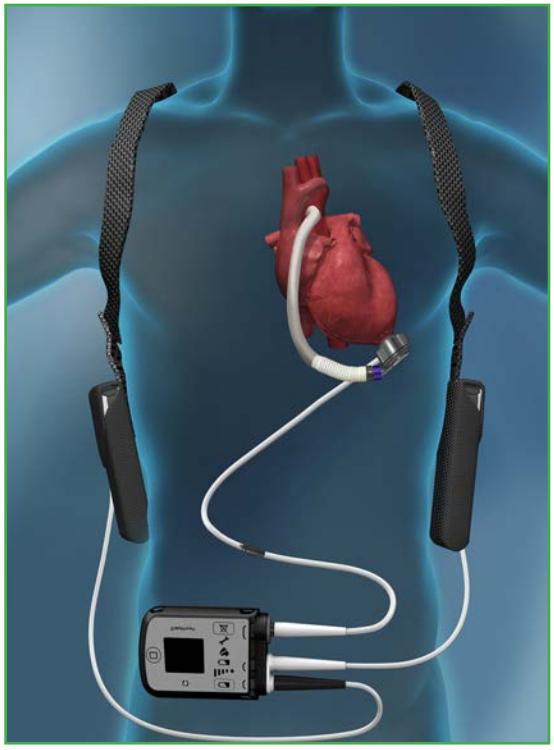
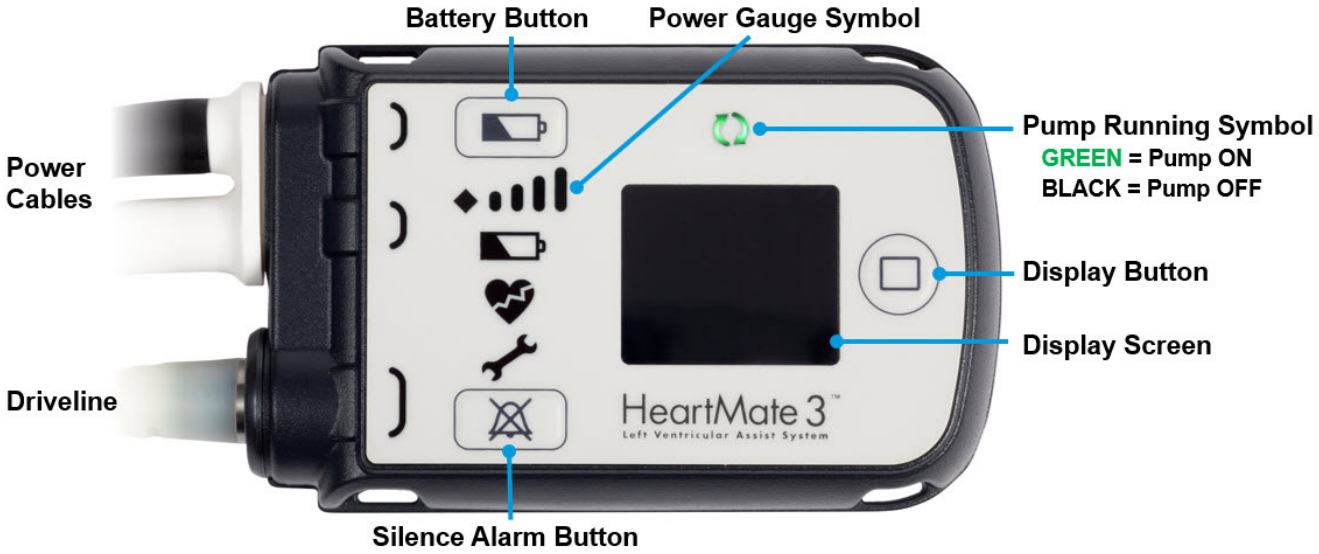


Figure 1

HeartMate 3™ Left Ventricular Assist System

System Controller



Changing Batteries

WARNING: At least one controller power cable must be connected to a power source AT ALL TIMES. Do not remove both batteries at the same time or the pump will stop.

- Obtain two charged batteries from patient's accessory bag or battery charger. The charge level of each battery can be assessed by pressing the button on the battery. Fully charged batteries will display 5 lights. (Figures 1 and 2)

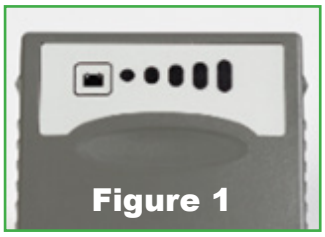


Figure 1

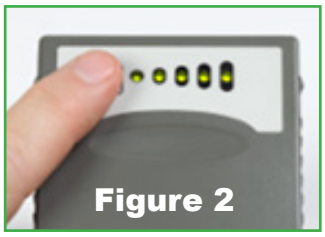


Figure 2

- Check the power level on the batteries, replace the battery with the fewest lights first. Remove only ONE battery from the clip by pressing the release button on the clip to unlock the battery. (Figure 3)

Figure 3

- Controller will start beeping and flashing yellow symbols and will read **CONNECT POWER** on the front screen.

- Insert a new, fully charged battery into the empty battery clip by aligning the **RED** arrows on the battery and clip (Figure 4). The battery will click into the clip. Gently tug on battery to ensure connection. If the battery is properly secured, the beeping and yellow flashing will stop.


Figure 4

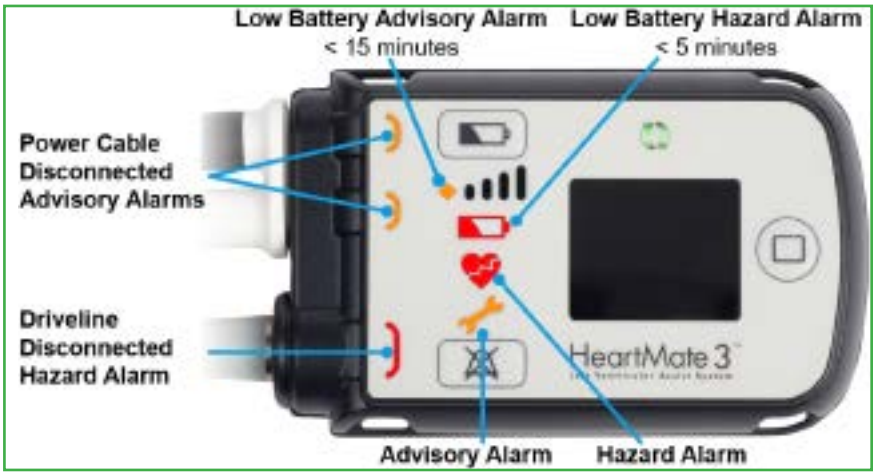
- Repeat previous steps with the second battery and battery clip.

Troubleshooting HeartMate 3™ LVAS

Alarms: Emergency Procedures

When an alarm occurs:

- Contact the Implant Center for direction when possible.
- Check alarm messages on controller display screen.
- Check if pump is running:
- Allow care providers trained on LVAD emergencies to remain with the patient.



When the Pump Has Stopped

- Check modular cable connection, driveline and power cable connections to the controller. Fix any loose connections to restart the pump.
- If the pump does not restart and the patient is connected to batteries replace the current batteries with a new, fully-charged pair. (see Changing Batteries section on previous page)
- If pump does not restart, change controllers if directed by implant center. (see Changing Controllers on next page)
- Be sure to bring ALL of the patient's equipment with them.

HAZARD ALARMS		Continuous Audible Tone
Low Flow :03 + Call Hospital Contact :07	Pump is off.	See above, when pump has stopped
	Pump flow is < 2.5 lpm.	Ensure that a power source is connected to the controller. Evaluate the patient for low flow - treat the cause. Assess volume status, hypertension, arrhythmia, right heart failure, etc.
Connect Driveline :02	Driveline disconnected.	Immediately reconnect Driveline to the controller. Check modular cable connection.
Connect Power Immediately :05 + Backup Battery :01	Both power cables are disconnected.	Immediately connect to batteries or the Mobile Power Unit.
Low Battery :06 + Replace Power :02	Low Battery Power < 5 min. remaining.	Immediately replace batteries or switch to the Mobile Power Unit.
ADVISORY ALARMS		Intermittent Audible Tone
Low Battery :06 + Replace Power Immediately :02	Low Battery Power <15 min. remaining.	Immediately replace batteries or switch to the Mobile Power Unit.
Connect Power :04	A power cable is disconnected.	Reconnect the power cable to power.
Check display for alarm type.		Call VAD Coordinator at implant center for direction.

Troubleshooting HeartMate 3™ LVAS

Changing the System Controller

Step 1: Have the patient sit or lie down since the pump will momentarily stop during this procedure.

Step 2: Place the replacement Controller within easy reach,along with the batteries/battery clips. The spare Controller is usually found in the patient's travel case.

Step 3: Attach the battery clips to the replacement controller by lining up half circles, firmly pushing together, and tightening connector nut. Insert the batteries into the clips by aligning the **RED** arrows.

Step 4: On the back of the replacement controller, slide the safety lock so the red release button is fully visible. Repeat this step on the original controller.

Step 5: Disconnect the drive-line from the original controller by pressing the red release button and pulling it out. The pump will stop and an alarm will sound. Note: The alarm will continue until the original controller is turned off. You can silence the alarm by pressing the silence alarm button.

Getting the replacement controller connected and the pump restarted is the first priority!

Step 6: Connect the replacement Controller by aligning the WHITE ARROWS on the driveline and replacement Controller and firmly pushing the driveline into the replacement Controller. The pump should restart, if not complete the following steps:

- Firmly press the Silence Alarm or Battery Button to restart the pump.
- Check the power source to ensure that power is going to the controller.
- Ensure the driveline is fully inserted into the socket by gently tugging on the metal end. **DO NOT** pull the driveline.

Step 7: After the pump restarts, slide the safety lock on the new controller so the red release button is fully covered. If unable to close the safety lock into fully locked position, gently push the driveline into the controller to ensure proper connection. Retry to close safety lock.

Step 8: Disconnect power from the original Controller.

Step 9: Hold down battery symbol for 5 full seconds for complete shutdown of old controller.

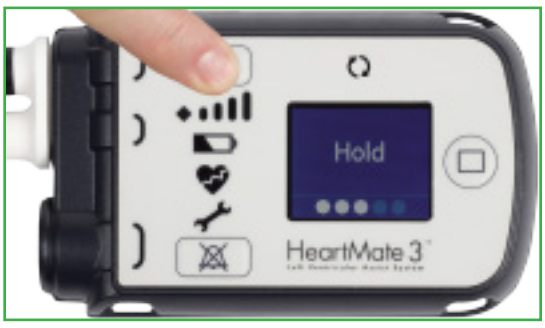
Step 3

Step 4

Step 7

Step 5

Step 6



Step 9

Safety Controls for High-Alert Medications	
Service Area: **Patient Safety: Medication Safety**	Standard Number: **XX-XXX-XXX V**1
Approved by: **Provinical Clinical Leadership Team (PCLT)**	Original Approval Date: **04/25/2023** Review Frequency: **Every 3 years or earlier as required**

1.0 PURPOSE:

To promote the safe prescribing, distribution, labelling, packaging, storage, preparation, administration, and monitoring of High-Alert Medications.

2.0 CLINICAL STANDARD:

2.1 Special Considerations

High-Alert Medications necessitate additional safeguards including independent double-checks, specific storage instructions, and label requirements to enhance client/patient safety and reduce errors that may lead to the possibility of serious harm.

- *Anesthesiology*: An independent double-check with visual verification prior to preparation and administration, including all pump settings and line connections, is required for:
  - All neuraxial medications administered by anesthesiologists (single doses and continuous infusions).
  - All local anesthesia medications (e.g. Bupivacaine, Ropivacaine, Lidocaine) including but not limited to additional medications, e.g. Dexmedetomidine and Dexamethasone, when given as a peripheral continuous infusion.
- *Student Nurses/Undergraduate Nurse Employees (UNE)/Learners:* May perform the first independent double-check, but not the second independent double-check. The second independent double-check must be completed by a licensed employee of the Service Delivery Organization (SDO). Grad nurses, student nurses and other learners may not perform a self-checking procedure.
- Regional contracting process ensures that distinctive packaging for High-Alert Medications is considered when awarding purchasing contracts.
- Commercially packaged or Pharmacy-prepared pre-mixed solutions of High-Alert Medications are used when available, and when applicable to the client/patient.
- All High-Alert Medications administered as intravenous or epidural infusions are, to the greatest extent possible, done using standardized concentrations.
- SDO audits are completed annually, as a minimum, in client/patient service areas.
- Refer to the SDO Medication Order Writing Policies for standards on prescribing High Alert Medications.
- Information and ongoing training are provided within SDOs for the management of high-alert medications.

The High-Alert Medication List is established and reviewed annually by Medication Quality and Safety Committees. All medications are to be reviewed for High-Alert consideration based

on historical problems, complicated dosing or administration, level of toxicity, narrow therapeutic index, or common practice. Future provincial structures are to be determined.

2.2 Procedure

The following independent double-checks and verifications are required when preparing and administering High-Alert Medications:

EXCEPTION: Medications administered in emergency situations follow SDO-specific procedures (e.g.Code Blue).

2.2.1 Calculation

An independent double-check of all calculations is performed when a High-Alert Medication is prepared in a client/patient care area.

EXCEPTION: An independent double-check of all calculations is not required when preparing medications according to standardized recipes detailed in SDO Parenteral Drug Monographs or Pharmacy Batch Compounding Records.

2.2.2 Medication Preparation

2.2.2.1 An independent double-check by visual verification of the following information is performed when a High-Alert Medication is prepared in a client/resident care area.

- Correct medication and concentration.
- Correct volume of medication needed.
- Correct diluent and volume needed.
- Correct volume and concentration of finished preparation.

Pharmacy staff complies with Pharmacy procedures when performing independent double-checks for medications prepared by Pharmacy.

2.2.2.2 High-Alert Medication infusions are labelled as per SDO labelling policies. The following information is recommended on medication labels.

- Drug name.
- Drug dose.
- Drug volume.
- Diluent (if applicable).
- Diluent volume (if applicable).
- Final concentration.
- Date and time of preparation.
- Client/patient name.
- Initials of calculation and medication preparation:
    - Initials of two Health Care Practitioners who prepared the medication and performed the independent double-check of calculations occurs on the preparation label. If Health Care Practitioner is working alone, the Self-Checking with Timeout-Procedure is followed below. Refer to section 4 below.

- Initials are not required for Pharmacy-prepared or commercially-prepared infusions.

2.2.3 Medication Administration

2.2.3.1 An independent double-check, by visual verification, using the Medication Administration Record (MAR) discipline, or provider-specific record or provider order as per program procedure, of the following information is performed prior to administration of a High-Alert Medication.

- Correct client/patient using two identifiers.
  - IM/Subcutaneous/Direct IV/Oral: An independent double-check against the MAR discipline or provider-specific record; a check at the bedside by a health care practitioner.
  - Infusions: The independent double-check occurs at the bedside.
- Correct medication and concentration.
- Correct dose for the client/patient.
- Correct route of administration.
- Correct time.

2.2.3.2 **Infusions (Intermittent and Continuous)**

In addition to the above, the following independent double-checks are performed at the bedside, by visual verification, when administering a High-Alert Medication via Infusion.

- Correct rate of administration.
- Correct pump settings.
- Correct administration set connection from the infusion container through the pump and into the client/patient. (When possible, select and use tubing without injection ports for High-Alert Medications).
- Administration set tracing from pump to client/patient.

These independent double-checks are performed:

- when establishing an infusion;
- when the rate or dose is changed;
- when the infusion container is changed; or
- when a transfer of care occurs, excluding temporary coverage referenced in SDO-level handover/transfer of care policies.

EXCEPTION: Independent double-checks are not required when titrating continuous infusions as per prescriber/physician orders of antiarrhythmics, vasopressors/inotropes, midazolam, and propofol in Adult ICUs, PACUs and with Critical Care Transport Teams. See the High Alert Medication List appendix with double asterisks(**) for specific medications.

It is required that the Health Care Practitioner administering the High-Alert Medication is one of two Health Care Practitioners involved in the independent double-check of the preparation unless Pharmacy-prepared.

2.2.3.3 Documentation Requirements of Medication Administration

- The Health Care Practitioner who performs the independent double-check of the medication administration signs or initials the MAR, or provider-specific record e.g. flowsheet following the initials or signature of the Health Care Practitioner who administered the High-Alert Medication.

  Note: When initials are being used in place of a signature they must identify the employee, and their designation, and be recognizable in the chart.

- It is required that one of the Health Care Practitioners who signs for the medication administration independent double-check is also the Health Care Practitioner who prepared the medications, excluding preparations from the Pharmacy.

2.2.4 Self-Checking with Time-Out Procedure

A Health Care Practitioner working alone performs the double-check procedures as outlined below.

If possible, another unrelated task should be done between doing the initial calculation, medication preparation and self-checking. This process, known as a time-out, offers a final verification process from a fresh perspective.

2.2.4.1 Documentation Requirements for Self-Checking with Time-Out Procedure

The Health Care Practitioner performing the Self-Checking and Time-Out Procedure initials the label, MAR, discipline, or provider-specific record, e.g. flowsheet or Pharmacy preparation record twice as an indication that this procedure was performed.

2.2.4.2 Storage and Flagging of High-Alert Medication

- Pharmacy Storage: High-Alert Medications stocked in Pharmacy are flagged through a shelf/bin label or a product label.
- Automated Dispensing Units: Medications dispensed through automated dispensing units are flagged through a clinical alert.
- Ward Stock in Client/Patient Care Area: High-Alert Medications available as ward stock medications are limited to those essential in providing timely care. Concentrations and volumes are made available in limited quantities to reduce errors. All High-Alert Medications available as ward stock are flagged through a shelf/bin label or a product label.
- Client/Patient-Specific Dispensed: Medications dispensed directly from Pharmacy have an auxiliary label on the product or client/patient-specific label. Medications dispensed for patient self-administration at home do not require an auxiliary label.
- Parenteral Drug Monographs: All monographs for High-Alert Medications are identified with a High-Alert Medication symbol.
- IV Infusion Pumps: Drug Error Reduction Software is used to flag all High-Alert Medications where available.
- Electronic Medication Record: Modules within the Electronic Medication Record will flag High-Alert Medications as supported by the software.

- All premixed epidural solutions are clearly labelled, "For Epidural Infusion Only", and stored separately from all intravenous preparations.
- All medications prepared for Intrathecal use are clearly labelled “For Intrathecal Use Only” and stored separately from all other intravenous preparations.
- Applicable client/patient care areas are notified by the Pharmacy of changes in manufacturer, labelling, and/or packaging of High-Alert Medications as determined by the Pharmacy program.

3.0 DEFINITIONS:

Care Transition: Any point in care where one provider is transitioning care to another provider or location.

Central Venous Access Device (CVAD): A device inserted into a central or peripheral vein with the tip located in the central venous system (i.e. superior or inferior vena cava) e.g. tunneled or non-tunneled catheters, implanted venous access devices (IVAD), dialysis catheters, peripherally inserted central catheters (PICC), umbilical venous catheter.

Client/Patient: An individual and/or their family/care provider who accesses and/or receives healthcare-related services from a facility or program, including affiliate or grant-funded agencies. Clients/patients may be clients/patients in an acute care setting, residents in a personal care home, or clients/patients in a community program or facility.

Continuous Infusion: Method of administering medication continuously intravenously or subcutaneously, through an IV bag, syringe, syringe pump, or infusion pump, at a set amount per route over a longer period of time (e.g. dose/hour).

Diluent: A solution used to dilute or dissolve.

DIN (Drug Identification Number): The 8-digit number located on the label of prescription and over-the-counter drug products that have been evaluated by the Therapeutic Products Directorate (TPD) and approved for sale in Canada.

Epidural: Into the epidural space

Health Care Practitioners: Includes but is not limited to physicians, nurses, allied health and support services staff that by legislation or by Service Delivery Organization (SDO) site or service policy may prescribe, prepare and/or administer medication.

High-Alert Medications: Medications that carry a heightened risk of causing significant client/patient harm when calculated, prepared, or administered in error. Although errors are not necessarily more common with these medications, the consequences of an error with these medications can be more devastating to a client/patient.

Independent Double-Checks: A second Health Care Practitioner checks, in a separate and independent manner from the first practitioner, all calculations needed to prepare a dose of a drug for administration to a client/patient, the preparation process, and administration of the drug. Visual verification is used within the independent double-check process for the preparation and administration procedures.

Intramuscular (IM): Into a muscle.

Intraosseous (IO): Into the bone marrow cavity.

Intraperitoneal (IP): Into the peritoneal cavity.

Intrathecal (IT): Into a sheath or the subarachnoid or subdural space.

Intravenous (IV): Into a vein.

Intravesical: Into the bladder.

IV Direct (Direct IV): Administration of medication or intravenous fluid, usually over less than 5 minutes, through an injection site adjacent to the needle or catheter, or directly into a vein.

IV Continuous Infusion (Continuous Infusion IV): See Continuous Infusion.

IV Intermittent Infusion (Intermittent IV): Method of administering IV medications using a volume of compatible IV fluids infused over the desired period.

IV Loading Dose: A higher dose of a drug, generally administered once or twice at the beginning of therapy, for the purpose of achieving therapeutic levels more quickly. Can be achieved by Direct or Intermittent administration. Also, can be administered from a continuous infusion bag.

Learners: Individuals registered in a pre-licensure health professions program, including but not limited to Paramedic, Respiratory Therapist and Nursing Students.

Medication Administration Record (MAR): This applies to all records (paper or electronic) used to document medication preparation and administration in client/patient care areas. Some units or services may visually verify a dose directly from the original medication order or other applicable administration records (i.e. flowsheet).

Neuraxial: Pertaining to the central nervous system.

Parenteral: Denoting a route other than the alimentary canal and/or oral route. Common examples included in Parenteral Drug Monographs are IM, subcutaneous, IV, and intranasal.

Prefilled Syringe: A commercially available product that contains a set amount of medication in a set volume of fluid in a syringe. The product has a DIN.

Self-Checking with Time-Out Procedure: A procedure where a Health Care Practitioner working alone performs the double-check of their own medication preparation and administration. If possible, another unrelated task should be done between doing the initial calculation and medication preparation and the second double-check.

"Smart" Pumps: Infusion pumps with dose-checking technology to help prevent potentially harmful errors in medication administration. The role of the smart pump technology is to "remember" the large number of "rules" (dosing limits and other clinical advisories) entered into the drug library and to apply those "rules" during pump programming, warning Health Care Practitioners about potential unsafe medication therapy.

Subcutaneous (subcut): Into subcutaneous tissue.

Visual Verification: A second Health Care Practitioner confirms, by visually checking.

Provincial High-Alert Medication List

Abbreviation Legend:
IV = intravenous; subcut = subcutaneous; IO = intraosseous; IM = intramuscular; PCA = patient controlled analgesia

Drug Classification	High Alert Medications	Route	Specific Instructions
Antiarrhythmic Agents	amiodarone	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	digoxin	Infusion (IV & IO)	All IV/IO intermittent infusions.
Antiarrhythmic Agents	dilTIAZem	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	ibutilide	Infusion (IV & IO)	All IV/IO intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	lidocaine	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	procainamide	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	verapamil	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Anticoagulants	argatroban	IV	All IV continuous and intermittent infusions.
Anticoagulants	bivalirudin	IV	All IV continuous and intermittent infusions.
Anticoagulants	dalteparin	IV, Subcut	For anticoagulation during hemodialysis and all doses when prepared in patient care area. EXCEPTION: when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	danaparoid	IV, Subcut	All IV continuous infusions and all doses when prepared in patient care area. EXCEPTION: IV direct, IV intermittent infusion and subcut when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	enoxaparin	IV, Subcut	All doses when prepared in patient care area. EXCEPTION: IV intermittent and subcut when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	eptifibatide	IV	All IV continuous infusions and all doses when prepared in patient care area. EXCEPTION: IV direct when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	fondaparinux	IV, Subcut	All doses when prepared in patient care area. EXCEPTION: IV intermittent and subcut when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	heparin	IV, Subcut	All IV continuous and intermittent infusions, IV direct or subcut when prepared in patient care area. EXCEPTION: IV intermittent and subcut when prepared by pharmacy or in a 5000 unit prefilled syringe/vial or **when used for CVAD maintenance.**
Anticoagulants	tinzaparin	IV, Subcut	For anticoagulation during hemodialysis and all doses when prepared in patient care area. EXCEPTION: when prepared by pharmacy or in a prefilled syringe.
Anticonvulsant agents	fosphenytoin	Pediatrics Only: Infusion (IV & IO)	Loading doses only.
Anticonvulsant agents	PENTobarbital	Pediatrics Only: All routes	
Anticonvulsant agents	PHENobarbital	Pediatrics Only: All routes	
Anticonvulsant agents	Phenytoin	Pediatrics Only: Infusion (IV & IO)	Loading doses only.
Antidotes	acetylcysteine	IV	Special ISMP Alert: Infusion Errors Leading to Fatal Overdoses of N-Acetylcystine. https://ismpcanada.ca/wp-content/uploads/ISMPCSB2022-i8-NAC-Alert-Infusion-Errors.pdf
Beta Blockers	propranolol	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Beta Blockers	esmolol	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Beta Blockers	labetalol	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.

Beta Blockers	metoprolol	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Cytotoxic Parenteral Agents	Refer to the WRHA Cytotoxic Hazardous Medication list	All parenteral routes	https://home.wrha.mb.ca/old/prog/pharmacy/files/DrugList_20160201.pdf
Electrolytes	calcium, all salts	Infusion (IV)	All IV continuous and intermittent infusions. Concentrated formulations include: - calcium gluconate 100 mg/mL (10%) (equals 9.3 mg Ca++/mL) - calcium chloride 100 mg/mL (10%) (equals 27.3 mg Ca++/mL) **If Pharmacy or Nurse prepared:** all concentrations are High-Alert. EXCEPTION: calcium chloride when administered in emergency situations, defer to SDO-specific procedures.
Electrolytes	potassium, all salts	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. Concentrated formulations include: - potassium chloride 2 mmol K+/mL - potassium phosphate 4.4 mmol K+/mL (equals 3 mmol phosphate/mL) - potassium acetate 4 mmol K+/mL (equals 4 mmol acetate/mL) - potassium chloride 20 mmol K+/100 mL minibag **If Pharmacy prepared:** concentration of final product is greater than or equal to 80 mmol/L of K+ are High-Alert. **If Nurse prepared:** all concentrations are High-Alert.
Electrolytes	sodium, all salts	IV (all salts)	All IV/IO continuous and intermittent infusions and IV Direct. Concentrated formulations include: - sodium acetate 4 mmol/mL - sodium bicarbonate 1 mmol/mL - sodium chloride 4 mmol/mL - sodium phosphate 4 mmol Na+/mL (equals 3 mmol/mL phosphate) - sodium chloride 3% (contains 0.513 mmol Na+/mL) **If Pharmacy or Nurse prepared:** concentration of final product is greater than 0.9% sodium chloride (0.154 mmol/mL of Na+) are High-Alert. EXCEPTION: sodium bicarbonate when administered in emergency situations, defer to SDO-specific procedures.
Electrolytes	dextrose	IV Continuous infusion	IV continuous when concentration of dextrose is greater than 20%. (NOTE: IV direct is not High-Alert).
Electrolytes	magnesium sulfate	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions where magnesium sulfate concentrations greater than 20% or 200 mg/mL (equivalent to 20 mg/mL or 0.8 mmol/mL of Mg++).
Insulin		All routes	All IV/IO continuous and intermittent infusions, IV direct and all subcut and intermittent doses. EXCEPTION: self-administered.
MISCELLANEOUS	alteplase	IV	All IV/IO continuous and intermittent infusions and IV direct. EXCEPTION: when used for CVAD maintenance.
MISCELLANEOUS	oxytocin	All routes	When administered for induction/augmentation of labour.
MISCELLANEOUS	tenecteplase	IV	All IV/IO continuous and intermittent infusions and IV direct.
MISCELLANEOUS	Total Parental Nutrition	IV	Exclude lipids being used outside of TPN applications.
Opioids	fentaNYL	All routes	Include intranasal, patches, continuous and intermittent infusions, PCA and IV direct and subcut EXCEPTION: IV direct/subcut/IM from ampoules/vials with less than or equal to 100 mcg per container.
Opioids	HYDROmorphone	IV, Subcut Pediatrics: all routes	Adult: All IV/IO continuous and intermittent infusions, IV direct and subcut . Pediatric: All routes including oral, IM, subcut and PCA. EXCEPTION: IV direct/subcut/IM from ampoules/vials with less than or equal to 2 mg/container.
Opioids	methadone	All routes	
Opioids	morphine	IV, Subcut, oral liquid, Pediatrics: all routes	Adult: All IV/IO continuous and intermittent infusions, IV direct and subcut. Pediatric: All routes including IV/IO, oral, IM, subcut and PCA. EXCEPTION: oral liquids less than 5 mg/mL. EXCEPTION: IV direct/subcut/IM from ampoules/vials with less than or equal to 15 mg/container for adults or less than or equal to 2 mg/container for pediatrics.
Opioids	remifentanil	All routes	
Opioids	SUFentanil	All routes	
Medications given by the neuraxial route	All	Neuraxial	Single dose and continuous infusions delivered via the spinal, epidural or spinal-epidural route. Special ISMP Alert: Tranexamic Acid https://ismpcanada.ca/wp-content/uploads/ISMPCSB2022-i6-Tranexamic-Acid-Spinal-Anesthesia.pdf
Medications given as peripheral wound infusions	All local anesthesia medications (e.g. bupivacaine, ropivacaine, lidocaine)	Continuous infusions including but not limited to the following: peripheral nerve wound, pleural, paravertebral	

Neuromuscular blocking agents	cisatracurium	All routes	
Neuromuscular blocking agents	rocuronium	All routes	
Neuromuscular blocking agents	succinylcholine	All routes	
Sedation Agents	chloral hydrate	All routes	Dose greater than 25 mg/kg/dose or 500 mg/dose.
Sedation Agents	diazePAM	All routes pediatric	
Sedation Agents	ketamine	Infusion (IV & IO), Intranasal, Pediatrics: all routes	Continuous infusion and intermittent high potency in concentrations in greater than 10 mg/mL. All routes pediatric including oral, nasal, IM and subcut.
Sedation Agents	LORazepam	Infusion (IV, subcut & IO), Pediatrics: all routes	Continuous infusion only All routes pediatric including oral, IM and subcut.
Sedation Agents	midazolam**	Infusion (IV, subcut & IO) Pediatrics: all routes	Continuous infusion only All routes pediatric including oral, nasal, IM and subcut.
Sedation Agents	propofol**	Infusion (IV & IO), Pediatrics: all routes	All continuous infusion only.
Vasodilators/Antihypertensives	enalaprilat	IV	All IV routes.
Vasodilators/Antihypertensives	hydrALAZINE	IV	All IV routes.
Vasodilators/Antihypertensives	nitroglycerin	IV	All IV routes.
Vasodilators/Antihypertensives	nitroprusside	IV	All IV routes.
Vasopressors and Inotropic agents	DOBUTamine	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.
Vasopressors and Inotropic agents	DOPamine**	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.
Vasopressors and Inotropic agents	EPINEPHrine**	IV	All IV routes.
Vasopressors and Inotropic agents	isoproterenol**	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.
Vasopressors and Inotropic agents	norepinephrine**	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.
Vasopressors and Inotropic agents	phenylephrine**	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when prepared by pharmacy or in a prefilled syringe.
Vasopressors and Inotropic agents	milrinone	IV	All IV routes.
Vasopressors and Inotropic agents	vasopressin	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.

NOTES:

***** Independent double-checks are not required when titrating continuous infusions as per prescriber/physician orders of vasopressors, midazolam, and propofol in Adult ICUs, PACUs, Emergency/Urgent Care Departments and with Critical Care Transport Teams.***

EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures

Health Care Practitioners are to follow SDO-specific procedures, such as a Code Blue policy, for the preparation and administration of HAM in emergency situations.

Shared health Soins communs Manitoba	H04 - SAFE MEDICATION ADMINISTRATION	
	Version date: 2022-07-14	REFERENCE

THE SIX RIGHTS OF SAFE MEDICATION ADMINISTRATION

Medication errors are a leading cause of patient safety incidents and are preventable. Paramedics should follow safe medication administration procedures at all times. The SIX RIGHTS should be applied every time!

RIGHT PATIENT *(& PROVIDER):*
Does this patient meet the indications for this medication? Are there any contraindications?
Is the administration of this medication within my scope and competency?

RIGHT MEDICATION:
Do I have the correct medication, formulation, concentration?

RIGHT DOSE:
Do I have the correct dose? If I had to make a calculation is my math correct?

RIGHT TIME:
Should I administer this medication now or is it safer to defer until hospital arrival?

RIGHT ROUTE:
Am I giving it by the correct route for the situation (and my work scope)?

RIGHT DOCUMENTATION:
Did I document thoroughly in the patient care record (PCR) including the dose, route, and time of administration?

1. Visually inspect all medications, including the packaging and label, prior to administration.
2. Do not administer a medication that looks cloudy or if its' container appears damaged.
3. Double check any calculations you have made and have your partner verify that your calculations are correct.
4. Any medication in a syringe that is not used immediately must be labelled.
5. Some EMS/PT medication standing orders will have a **HIGH-ALERT WARNING.** Read it!
6. Some medication doses will vary for different indications (eg. epinephrine). Some medication doses will adjust for different routes of administration (eg. intranasal versus intravascular). If you do not remember a dose, look it up.
7. Some medications can be dangerous if administered too rapidly. Adhere to directions regarding the rate of administration.
8. Elderly patients are generally more sensitive to the CNS and respiratory effects of many medications, especially opioids and sedatives. Go lower and slower!
9. Any medication that can be given by the intravenous route can be administered by the intraosseous route if necessary. IO administration should be considered in life-threatening circumstances when there is no alternative.
10. Generally medications that are past their expiry date should not be administered. However, in a life-threatening situation it should be tried anyway (eg. Epi-Pen for anaphylaxis, ASA for chest pain).
11. Medications approaching or beyond its expiry date should be replaced as soon as practical.
12. Be cautious when administering an intramuscular injection if the patient is on an anticoagulant or has a bleeding disorder.

13. Do not administer intranasal medications to a patient with a basal skull or mid-face fracture. If the fracture involves the cribriform plate medication may leak into the cranial cavity.
14. Adverse reactions to a medication must be documented in the PCR.
15. Medication errors must be documented and reported to health care staff at the receiving facility.
16. Controlled substances must be counted, reconciled, and handled / stored in accordance with Federal and Provincial laws.

Shared health Soins communs Manitoba	H05 - PRINCIPLES OF CONSENT	
	Version date: 2024-01-18	REFERENCE

PREAMBLE

Every adult in Manitoba is presumed to have the right (legal capacity) to make decisions around their own health care. Consent is *required* for any medical intervention including treatment and transport to hospital by paramedics. The individual's right to agree to, or refuse, medical treatment can only be removed by the Court.

Minors between the ages of 16 and 18 years are presumed have the right to make *some* of their own health care decisions. With few exceptions, those under 16 years of age do not (section B).

Individuals can delegate responsibility for their own health care decisions to another adult (section C). Health care providers cannot give consent on behalf of a patient but may intervene without consent in medical emergencies (sections D).

An involuntary patient in a mental health facility retains the right to make health care decisions in the absence of evidence to the contrary (section F). Similarly, an individual in custody or incarceration retains the right to make their own health care decisions (section G).

SECTION A: PREREQUISITES FOR CONSENT

There are four prerequisites to a valid consent at law:

1. **CAPACITY:**
   Making personal health care decisions requires having both the legal and mental capacity to do so.

   In Manitoba every individual over 18 years of age is presumed to have the **legal capacity** to make their own decisions about their health care unless there has been a legal determination to the contrary. An emancipated minor is an individual under age 18 years who has been declared by the Court to have the same legal rights (and thus legal capacity) as an adult. Individuals between the ages of 16 and 18 are presumed to have the legal capacity to make some health care decisions, though one cannot presume that they have the requisite mental capacity on the basis of age alone.

   Under normal circumstances an adult in Manitoba is presumed to have the requisite **mental capacity** to make health care decisions in the absence of information to suggest otherwise. Mental capacity may be temporarily lacking such as with intoxication, delirium, or psychosis. Or it may be permanently absent such as with dementia or developmental delay. Determining an individual's mental capacity is complex and may not be possible in the typical 911 encounter.

2. **INFORMED:**
   For a health care decision to be properly informed, a discussion about the nature, risks, and benefits of an intervention, and any alternatives to the intervention must take place. The information must be presented in plain language and the health care provider must ensure that it is retained and understood.

3. **VOLUNTARY:**

Paramedics must always act in good faith and in the best interests of the patient, without regard for personal gain or convenience. Consent (or refusal) that is obtained by influence, deception, omission, concealment, or coercion is generally not upheld, regardless that the patient has signed a release.

4. **SPECIFIC:**
   Consent must be specific to both the current circumstances, the proposed treatment and the individual administering it. Calling 911 does not indicate tacit agreement for treatment or transport.

SECTION B CONSENT FROM MINORS

MATURE MINOR:
The principle of the mature minor allows that some individuals, generally between 16 and 18 years of age, are able to make *some* of their own health care decisions. In Manitoba it is not clearly defined by legislation, its understanding is vague, and its application inconsistent.

It is not simply based of chronological age. To satisfy the test of a mature minor, a careful evaluation of the individual's intellectual and emotional maturity, lifestyle, beliefs, and family relationships is required. This is rarely possible within the constraints of a 911 situation.

As well, it does not apply to all decisions, but is specific to the gravity of the situation. A 16-year-old can usually receive birth control without parental consent, but may not be able to refuse a life saving amputation for cancer without parental input. The same patient may not be able to refuse transport from a major motor vehicle collision. All efforts should be made to obtain parental / guardian consent or OLMS consultation.

EMANCIPATED MINOR:
Some individuals between 16 and 18 years of age may be deemed by the Courts to be *emancipated.* This means that they are legally free from the control of a parent or legal guardian, and the parent or legal guardian is free from responsibility for them. Emancipated minors can legally consent or refuse medical treatment. However, they cannot act as a substitute decision maker for another individual.

SECTION C: CONSENT WHEN THE PATIENT IS UNABLE TO COMMUNICATE

HEALTH CARE DIRECTIVE (example - page 5)**:**
A health care directive, sometimes also referred to as *living will*, allows an individual to document instructions about the treatments they would accept or refuse in the event that they become unable to speak for themselves. Dedicated forms are widely available, but a directive does not have to be a formal document. It can be any written document which is signed and dated by the patient. The directive may sometimes identify an individual to assist with health care decision making. <u>The directions expressed in a health care directive are legally binding</u>.

A paramedic who follows what they reasonably believe to be the patient's directions regarding care and acts in the best interests of the patient is usually protected from culpability. Paramedics are not obliged to seek out a health care directive nor expected to determine its validity, but should make *reasonable* efforts to determine if a patient has one. Individuals often include it in their emergency response information kit (ERIK).

ADVANCE CARE PLAN (example - page 6):
In most Manitoba hospitals and personal care homes an advanced care plan (ACP) is a document used to convey a patient's goals of care in a consistent and easily-recognizable fashion. It is usually filled out by a patient and health

care provider together at or shortly after admission. Though not legally binding, in the absence of a directive or substitute decision-maker, a paramedic may reasonably assume that it represents the patient's most recent wishes,

SUBSTITUTE DECISION-MAKER:
A competent patient may designate in writing that an individual act as their substitute decision-maker, also known as health care proxy. In the absence of a written one, a patient may make the designation verbally. A minor person cannot be a health care proxy. The proxy is required to act in accordance with a person's directions and make decisions based on their knowledge of the patient's previous expressions, personal beliefs, etc.

In the absence of any such designation (usually in critical situations) a competent adult may act as a proxy, according to the following legally established hierarchy:

a. Spouse or partner
b. Parent with primary care and control
c. Parent with legal access
d. Offspring
e. Sibling
f. Other first degree adult relative

If some situations, the Court may designate an individual to be a health care proxy. This is most commonly a family member. If the patient has no family, the Court may place them under the guardianship of a Public Trustee.

Power-of-attorney is the Court-granted authority to manage another individual's affairs when they are deemed not competent to do so. Although the terms are often used interchangeably, competency is a legal determination made by the Court, while capacity is a medical term. Contrary to common belief, power of attorney does not automatically extend to health care decisions. An individual who has relinquished power of attorney may still have the mental capacity to make their own health care decisions or may appoint another individual to act as their proxy for health care matters.

SECTION D: IMPLIED CONSENT IN EMERGENCIES

In the absence of a health care directive or substitute decision maker, the common law principle of *implied consent* presumes that the average reasonable person in a medical emergency would agree to an intervention advised by a duly qualified health care provider to preserve their life, limb, or a vital function. With a minor patient it is presumed that a reasonable parent or guardian under the same circumstances would also agree.

Health care providers acting reasonably and in the best interests of the patient would not be culpable, even if their actions were in contradiction to the patient's health care preferences unbeknownst at the time of intervention.

SECTION E: CONSENT FROM PATIENTS UNDER THE MENTAL HEALTH ACT

The Mental Health Act is legislation that enables the involuntary detention (custody), transport, assessment, and admission of a person who lacks the mental capacity to provide informed consent by reason of a mental disorder.

An *Order for Involuntary Medical Examination* (form 2) or an *Application by Physician for Involuntary Psychiatric Examination* (form 4) authorize a police officer, peace officer or qualified person (as defined by the MHA) to detain and transport an individual without their consent.

Under certain conditions a person can be admitted into a mental health facility without consent. An *Involuntary Admission Certificate* (form 6) or *Renewal Certificate* (form 7) completed by a qualified psychiatrist allows for detention of the patient.

Forms 2, 4, 6 and 7 allow for involuntary detention, but not treatment without consent. A *Certificate of Incompetence to Make Treatment Decisions* (form 9) completed by other than the patient's own psychiatrist is required to administer medical care against an individual's wishes.

In the absence of a valid form 9, consent is required for any medical intervention performed by a paramedic. In an emergency, the principle of implied consent must be employed.

SECTION F: CONSENT FROM PATIENTS IN CUSTODY OR UNDER INCARCERATION

Individuals being detained by local law enforcement (including those detained under the Intoxicated Person Detention Act (IPDA) and individuals in the custody of Correctional Services Canada (CSC) retain the right to consent to or refuse medical intervention. Neither police nor corrections officers can provide substitute consent.

Once again, In an emergency, the principle of implied consent must be employed.

Health Care Directive

Manitoba

Please type or print legibly

This is the Health Care Directive of:

Name _____

Address _____ City _____

Province _____ Postal Code _____ Telephone ( ) _____

Part 1 – Designation of a Health Care Proxy

You may name one or more persons who will have the power to make decisions about your medical treatment when you lack the ability to make those decisions yourself. If you do not wish to name a proxy, you may skip this part.

I hereby designate the following person(s) as my Health Care Proxy:

Proxy 1

Name _____

Address _____

_____

City _____

Province _____ Postal Code _____

Telephone ( ) _____

Proxy 2

Name _____

Address _____

_____

City _____

Province _____ Postal Code _____

Telephone ( ) _____

(Check ✔ one choice only. If you have chosen more than one proxy and wish them to act "consecutively" and "jointly" please refer to the information sheet for further explanation).

If I have named more than one proxy
I wish them to act

❑ **consecutively** OR ❑ **jointly**

My Health Care Proxy may make medical decisions on my behalf when I lack the capacity to do so for myself *(check ✔ one choice only):*

❑ With **no restrictions**

❑ With **restrictions as follows:**

_____

_____

_____

_____

_____

Part 2 – Treatment Instructions

In this part, you may set out any instructions concerning medical treatment that you do not wish to receive and the circumstances in which you do or do not wish to receive that treatment. REMEMBER – your instructions can only be carried out if they are set out clearly and precisely. If you do not wish to provide any treatment instructions you may skip this part.

_____

_____

_____

_____

_____

_____

Part 3 – Signature and Date

You must sign and date this Health Care Directive. Two witnesses must also sign.

Signature _____

Date _____

If you are unable to sign yourself, a substitute may sign on your behalf. The substitute must sign in your presence and in the presence of a witness. The proxy or the proxy's spouse cannot be the substitute or witness.

Name of substitute: _____

Address _____

_____

Signature _____

Date _____

Name of witness: _____

Address _____

_____

Signature _____

Date _____

Consecutively: The second proxy would be contacted if the first is not available or is unwilling to make the required decision at the required time.
Jointly: The first proxy and second proxy would act together on your behalf.

PRAIRIE MOUNTAIN HEALTH

ADVANCE CARE PLANNING GOALS OF CARE

PMH Advance Care Planning Policy

Client Health Record Number	
Client Surname	
Given Name	
Date of Birth	
Gender	
MHSC	
PHIN	
Address	

☐ Is there an existing Health Care Directive? ☐ No ☐ Yes

(If yes, it shall guide further discussions as an indication of the Client's wishes at the time of writing – Please attach a copy)

Advance Care Planning (ACP) is the overall process of dialogue, knowledge sharing and informed decision making that needs to occur at any time when treatment options and goals of care are being considered or revisited. This form is used to record agreed upon goals of care reached through full and complete ACP discussions with the client and/or alternate decision maker about the nature of the individual's current condition, prognosis, treatment/procedural/investigation options, and expected benefits or burdens of those options.

GOALS OF CARE (Check the box that best describes the Client Goals of Care)

☐ C = Comfort Care – Goals of care and interventions are directed at maximal comfort, symptom control and maintenance of quality of life *excluding* attempted resuscitation.

☐ M = Medical Care – Goals of care and interventions are for care and control of the client's condition. The consensus is that the client may benefit from, and is accepting of, any appropriate investigations/interventions that can be offered *excluding* attempted resuscitation.

☐ R = Resuscitation – Goals of care and interventions are for care and control of the client's condition. The consensus is that the client may benefit from, and is accepting of, any appropriate investigations/interventions that can be offered *including* attempted resuscitation.

If the required care is not available in the current location or setting, does the client want to be transferred to an alternate facility? ☐ No ☐ Yes

Indicate all individuals who participated in goals of care discussion(s) by checking appropriate box(es).

☐ Client Print Name: _____ Signature: _____

☐ Family Member Print Name: _____ Signature: _____

☐ Alternate Decision Maker Print Name: _____ Signature: _____

☐ Health Care Provider Print Name: _____ Signature: _____

Document other participants (i.e. family members and/or health care providers), details of the client specific instructions or wishes and/or details of discussion with the individuals indicated. (Refer to date/time of Progress Note entry if more space is required):

_____

_____

_____

Name & Designation of Health Care Provider | Signature of Health Care Provider (Physician's signature is required when patient is a client of the Public Trustee) | yyyy/mmm/dd

The goals of care were reviewed with the client and/or alternate decision maker and no change to the form is required.

Name & Designation of Health Care Provider | Signature of Health Care Provider (Physician's signature is required when patient is a client of the Public Trustee) | yyyy/mmm/dd

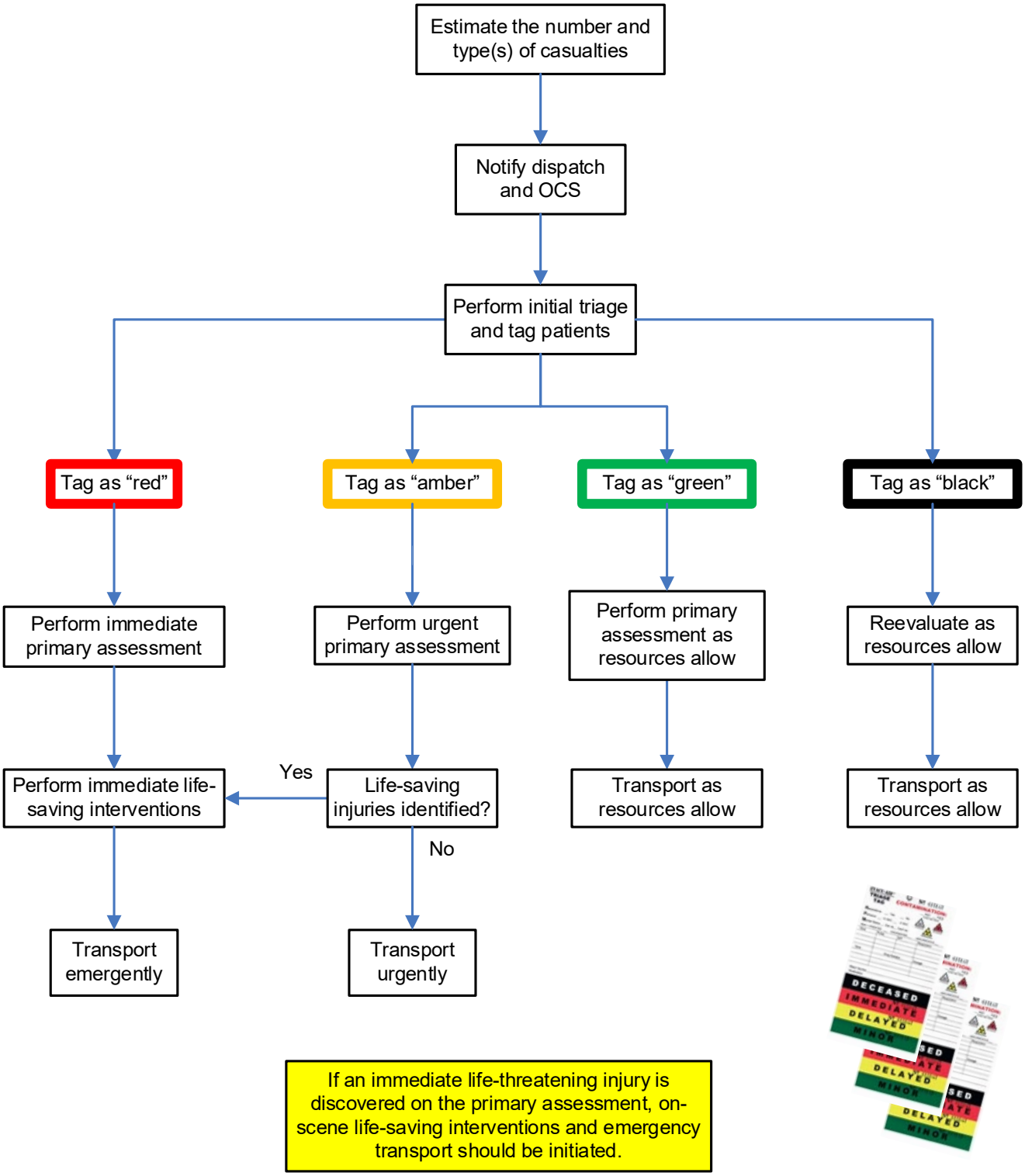
Name & Designation of Health Care Provider | Signature of Health Care Provider (Physician's signature is required when patient is a client of the Public Trustee) | yyyy/mmm/dd

Name & Designation of Health Care Provider | Signature of Health Care Provider (Physician's signature is required when patient is a client of the Public Trustee) | yyyy/mmm/dd

If review results in any changes to the Client Goals of Care, a new form must be completed.

PROVIDE A COPY OF COMPLETED FORM TO CLIENT OR ALTERNATE DECISION MAKER

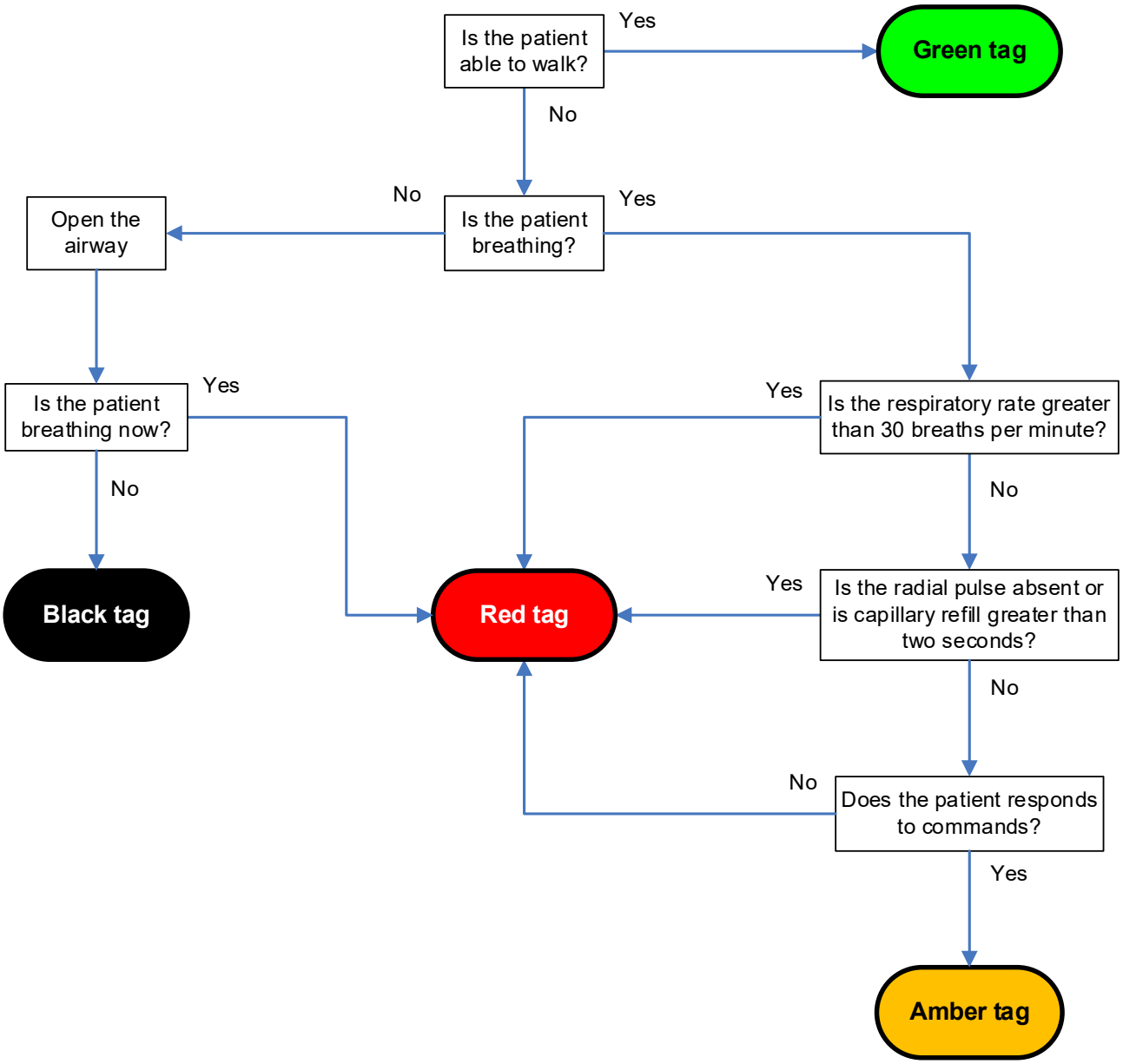
Shared health Soins communs Manitoba	H06 - MASS CASUALTY TRIAGE	
	Version date: 2022-03-01	REFERENCE



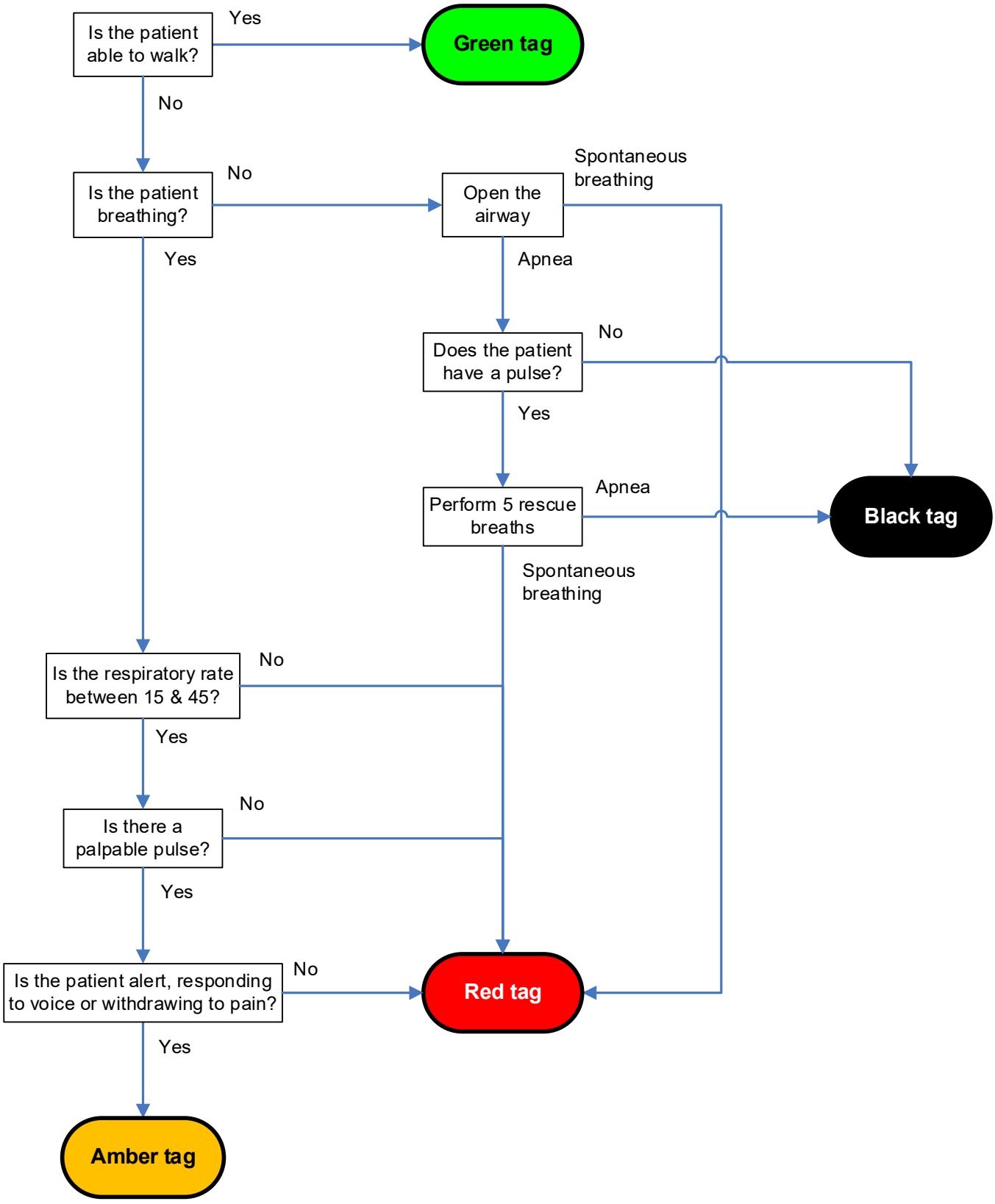
NOTES

- A mass casualty incident (MCI) is defined as any traumatic incident where the number and severity of casualties significantly exceeds the available personnel and resources currently on scene.
- Two triage tools (START and JUMPSTART) can be utilized to help the initial health care providers on the scene to rapidly sort through multiple casualties.
- The total number of casualties should be rapidly estimated and reassessed regularly, to ensure that no patients are missed.
- Perform an initial triage on all patients. Patients age ten years and older should be prioritized using the START triage algorithm (appendix A). Use the JumpSTART algorithm for patients under ten years of age or when a child's age is unknown (appendix B). A triage tag should be attached to all patients to ensure that no patients are missed.
- **RED:** These patients are given the highest priority, and should have an immediate trauma primary assessment to rapidly exclude immediate life-threatening injuries (airway obstruction, hypoxemia, exsanguinating hemorrhage, tension pneumothorax). Providers with the appropriate delegations should treat immediate life-threatening injuries on scene. These patients require emergency transport to a facility capable of providing trauma care to survive.
- **AMBER:** These patients are of intermediate priority, and should have an urgent primary assessment. Immediately life-threatening injuries should be treated on-scene as with "red" patients. These patients will require prompt treatment of their injuries. The urgency of transport will depend on findings from the primary survey. If immediate life-threatening injuries are discovered, they should be upgraded to highest transport priority.
- **GREEN:** These patients are of lower priority. They should have a primary assessment as soon as possible after the "red" and "amber" patients have been cared for. The treatment of their injuries can often be safely deferred or delayed to allow care to higher priority patients. The timing of transport will depend on the findings from the primary survey and other transport priorities.
- **BLACK:** These patients are predicted not to survive. In a MCI, patients with a chance of recovery must be given a higher priority. The priority for transport is lowest and depends upon available resources.

Appendix A:
START - Simple Triage and Rapid Treatment (age ten years & older)



Appendix B:
Jump START - Simple Triage and Rapid Treatment for Children (age ten years & older)



Shared health Soins communs Manitoba	H08 - STILLBIRTH IN THE PREHOSPITAL ENVIRONMENT	
	Version date: 2022-03-25	REFERENCE

NOTES

1. **Stillbirth** is defined by the US Centre for Healthcare Statistics as a fetus delivered after 20 weeks gestation with no signs of life. Delivery before 20 weeks is defined as a miscarriage or spontaneous abortion.

   Stillbirths are divided into **early** (20 to 27 weeks), **late** (27 to 37 weeks), and **term** (37 weeks or later) categories.

   Term stillbirth is further subdivided into **antepartum** (occurring before the onset of labour) and **intrapartum** (occurring during labour).

2. Infants that are born very early are not generally considered to be viable until after 24 weeks gestation, where the survival rate in the best of environments (minimal birth trauma, immediate access to neonatal intensive care) is about 50 percent.

   Case reports of survival of infants born between 22 and 24 weeks gestation are sporadic, and usually have not resulted from out of hospital delivery in remote settings.

   However, the youngest reported surviving fetus was born at 21 weeks, while smallest surviving preemie (born at 23 weeks) was 245 grams, about the size of a half-pound of butter.

3. Pregnancy dating can be challenging, and even discrepancies of 1 to 2 weeks can have profound implications for survival.

   Unless a pregnancy has been conceived by assisted reproductive technology where the exact date of fertilization or implantation can be identified, determining fetal age is accurate only to within 3 to 5 days in the first trimester, and plus or minus up to two weeks subsequently.

4. The baby's appearance at the time of birth is not always an accurate predictor of survival. The later in pregnancy that stillbirth occurs, the less likely there will be signs of maceration or decay. Clinical findings such as fused eyelids or translucent skin can be very difficult for an inexperienced clinician to identify, are not universally present, and can be seen in viable births (eg. congenitally fused eyelids). DO NOT RELY ON THESE.

5. Differentiating a stillborn neonate from an apneic and pulseless (but viable) newborn is challenging even for neonatal experts. This is even more difficult in the chaos of a prehospital delivery.

6. Unless it is known with certainty that the fetal age is less than 20 weeks, initiating newborn resuscitation will allow more time for information to be gathered and on-line medical support to be consulted.

   If resuscitation is successful, further decisions about continuing care then can be deliberated when further information, including prognosis and parental views, is available.

7. Be aware that witnessing a stillbirth or performing newborn resuscitation, even if successful, can be emotionally daunting for paramedics.

Shared health Soins communs Manitoba	H09- NATIONAL EARLY WARNING SCORE	
	Version date: 2022-03-26	REFERENCE

Chart 1: The NEWS scoring system

Physiological parameter	Score 3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

Chart 2: NEWS thresholds and triggers

NEW score	Clinical risk	Response
Aggregate score 0–4	Low	Ward-based response
Red score Score of 3 in any individual parameter	Low–medium	Urgent ward-based response*
Aggregate score 5–6	Medium	Key threshold for urgent response*
Aggregate score 7 or more	High	Urgent or emergency response**

* Response by a clinician or team with competence in the assessment and treatment of acutely ill patients and in recognising when the escalation of care to a critical care team is appropriate.

**The response team must also include staff with critical care skills, including airway management.

Shared health Soins communs Manitoba	H11 ANTICOAGULANT NAMES	
	Version date: 2022-09-12	REFERENCE

ORAL AGENTS		
GENERIC NAME	**CANADIAN NAME**	**AMERICAN NAME**
Apixiban	ELIQUIS	ELIQUIS
Betrixiban	*Not available in Canada*	BEVYXXA
Dabigatran	PRADAXA	PRADAXA
Edoxaban	LIXIANA	LIXIANA
Rivaroxaban	XARELTO	XARELTO
Warfarin	COUMADIN	JANTOVEN

INJECTABLE AGENTS		
Dalteparin	FRAGMIN	FRAGMIN
Danaparoid	ORGARAN	ORGARAN
Enoxaparin	LOVENOX	LOVENOX
Fondaparinux	ARIXTRA	ARIXTRA
Nadroparin	FRAXIPARINE	FRAXIPARINE
Tinzaparin	INNOHEP	INNOHEP
Unfractionated heparin	HEPARIN	HEPARIN

Shared health Soins communs Manitoba	**M01 - ADENOSINE *(ADENOCARD)***
	MEDICATION STANDING ORDER
Version date: 2023-07-24	Effective date: 2023-09-19 (0700 hours)

INDICATIONS
• Known or suspected paroxysmal supraventricular tachycardia (PSVT) with stable hemodynamics • PSVT with known aberrant conduction and stable hemodynamics [3]

CONTRAINDICATIONS
• Tachycardia (regardless of QRS duration) with unstable hemodynamics • Known or suspected ventricular tachycardia • Undifferentiated wide-complex tachycardia (WCT)

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS / INTRAOSSEOUS **(ICP & ABOVE)**	<u>10 years & older</u>: First dose - 6 mg first dose Second dose - 12 mg	As required [4]
	<u>12 months to 10 years</u>: First dose - 0.1 mg/kg (max = 6 mg) Second dose - 0.2 mg/kg (max = 12 mg)	

NOTES
1. Administer by rapid IV / IO push, followed by saline flush. 2. There should be evidence of successful central drug delivery such as bradycardia or asystole on the ECG monitor, and the patient may complain of subjective sensations (dyspnea, lightheadedness, nausea, sense of impending doom) that accompany the drug. Patients should be forewarned about these. 3. Administer adenosine for paroxysmal supraventricular tachycardia (PSVT) with known aberrant conduction (QRS complexes greater than 120 milliseconds) and stable hemodynamics only if the QRS complexes are regular and monomorphic. 4. If the tachycardia initially converts but then recurs, providers may consider repeated dosing, but further recurrence remains possible. Consider the transport duration and the patient's ability to tolerate the tachycardia during transport.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M02.1 - ACETAMINOPHEN *(TYLENOL)***
	MEDICATION STANDING ORDER
Version date: 2023-11-09	Effective date: 2023-11-21 (0700 hrs)

INDICATIONS
• Mild to moderate pain • Fever

CONTRAINDICATIONS
• True allergy to acetaminophen • Known liver failure • Do not administer oral medications if anaesthesia or surgery is anticipated within the next 4 hours

DOSING		
AGE	**INITIAL DOSE**	**REPEAT DOSE**
ORAL		**EMR / PCP / ICP**
12 yrs & older	• 650 to 1000 mg	• Every 4 hours as required
72 hrs up to 12 yrs	• 10 to 15 mg/kg (MAX = 650 mg)	

NOTES
• None

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X08 for change tracking)
• Correction of pediatric dosing information

Shared health Soins communs Manitoba	**M02.2 - IBUPROFEN *(ADVIL, MOTRIN)***
	MEDICATION STANDING ORDER
Version date: 2023-07-24	Effective date: 2023-09-19 (0700 hrs)

INDICATIONS
• Mild to moderate pain • Fever

CONTRAINDICATIONS
• True allergy to ibuprofen or aspirin (ASA) induced asthma or bronchospasm • Major trauma or other active bleeding • Pregnancy • End-stage renal failure • Do not administer oral medications if anaesthesia or surgery is anticipated within the next 4 hours

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
ORAL **(EMR & ABOVE)**	12 years & older - 400 to 800 mg	Every 6 hours as required
	3 months up to 12 years - 10 mg/kg (max = 400 mg)	

NOTES
• None

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	M03.1 - MORPHINE	
	MEDICATION STANDING ORDER	HIGH-ALERT MEDICATION [1]
Version date: 2023-12-13	Effective date: 2024-02-13 (0700)	

INDICATIONS
• Moderate to severe pain from an acute illness, injury, or an exacerbation of a chronic condition that is significant enough to require analgesic to facilitate safe and comfortable patient transport

CONTRAINDICATIONS
• True allergy to morphine • Decreased level of consciousness or known / suspected significant head injury • Significant drug or alcohol intoxication • Hypoventilation or respiratory failure • Uncorrected / uncorrectable hypotension or hypo-perfusion

ROUTE (WORK SCOPE)	INITIAL DOSE	REPEAT DOSE
INTRAMUSCULAR **(ICP & ABOVE)**	10 years & older - 0.1 mg/kg (max = 10 mg/dose)	30 minutes (max = 20 mg/hr)
	12 months up to 10 years - 0.1 mg/kg (max = 5 mg/dose)	30 minutes (max = 10 mg/hr)
INTRAVENOUS / INTRAOSSEOUS **(ICP & ABOVE)**	10 years & older - 0.1 mg/kg (max = 10 mg/dose)	15 minutes (max = 20 mg/hr)
	12 months up to 10 years - 0.1 mg/kg (max = 5 mg/dose)	15 minutes (max = 10 mg/hr)

NOTES
1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS). 2. Administer IV / IO by slow push over 60 second. 3. Morphine may have pronounced depressive effects on the respiratory drive of opioid-naïve patients. Consider smaller doses and slower administration. It may have more pronounced effects on the central nervous, respiratory and cardiovascular systems in the elderly, especially if frail or compromised. Consider smaller doses and slower administration in patients greater than 75 years of age. 4. Patients who are compensating for hemodynamic compromise may develop hypotension after morphine administration. If hypotension develops, give IV fluid by rapid bolus and reassess before repeating opioid administration.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Addition of Shared Health Provincial Clinical Standard for high-alert medications

Shared health Soins communs Manitoba	M03.2 - FENTANYL	
	STANDING ORDER	HIGH-ALERT MEDICATION [1]
Version date: 2024-04-15	Effective date: 2024-05-15 (0700)	

INDICATIONS

- Moderate to severe pain from an acute illness, injury, or an exacerbation of a chronic condition that is significant enough to require analgesic to facilitate safe and comfortable patient transport

CONTRAINDICATIONS

- True allergy to fentanyl
- Decreased level of consciousness
- Significant head injury
- Significant drug or alcohol intoxication
- Hypoventilation or respiratory failure
- Hypotension or shock

DOSING

INTRANASAL (PRIMARY WORK SCOPE & ABOVE): [3]
- 10 yrs & older - 2 mcg/kg (single dose maximum = 100 mcg)
- Up to 10 yrs - 2 mcg/kg (single dose maximum = 50 mcg)
- Repeat once in 10 min if required (use alternate nostril)

INTRAMUSCULAR (PRIMARY WORK SCOPE & ABOVE):
- 10 yrs & older - 2 mcg/kg (single dose maximum = 100 mcg)
- Up to 10 yrs - 2 mcg/kg (single dose maximum = 50 mcg)
- Repeat every 30 to 60 min as required

INTRAVENOUS / INTRAOSSEOUS (PRIMQARY WORK SCOPE & ABOVE):
- 10 yrs & older - 0.5 to 1 mcg/kg (single dose maximum = 100 mcg)
- Up to 10 yrs - 0.5 to 1 mcg/kg (single dose maximum = 50 mcg)
- Administer by slow push over 1 - 2 min

NOTES
1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS). 2. Fentanyl is a high-potency opioid and may have pronounced depressive effects on the respiratory drive of opioid-naïve patients. It may have more pronounced effects on the central nervous, respiratory and cardiovascular systems in the elderly, especially if frail or compromised. Consider smaller doses and slower administration in patients greater than 75 years of age. 3. INTRANASAL ROUTE WITHOUT VASCULAR ACCESS: • Should not be used for routine analgesia. • Do not use in acute coronary syndrome as uncorrected hypotension may worsen myocardial ischemia. • Use extreme caution if administering for painful extrication as hypotension may occur in a hemorrhaging patient who is compensating.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Removal of requirement for IV access with IN administration, but reminder re administration without vascular access

Shared health Soins communs Manitoba	**M04.1 – DIMENHYDRINATE *(GRAVOL)***
	MEDICATION STANDING ORDER
Version date: 2023-07-24	Effective date: 2023-09-19 (0700 hrs)

INDICATIONS
• Nausea and/or vomiting • Nausea and vomiting during pregnancy • Prevention of opioid-induced nausea or vomiting

CONTRAINDICATIONS
• True allergy to dimenhydrinate

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAMUSCULAR / INTRAVENOUS **(PCP & ABOVE)**	17 years & older - 50 mg	Every 4 hours as required
	10 up to 17 years - 25 to 50 mg	
	12 months up to 10 years - 0.5 mg/kg (max = 25 mg/dose)	

NOTES
1. None

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M04.2 – METOCLOPRAMIDE *(MAXERAN)***
	MEDICATION STANDING ORDER
Version date: 2023-07-24	Effective date: 2023-09-19 (0700 hours)

INDICATIONS
• Nausea and/or vomiting (all protocols except E30 - IERHA Palliative Care) • Nausea and vomiting during pregnancy • Prevention of opioid-induced nausea or vomiting

CONTRAINDICATIONS
• True allergy to metoclopramide • Known or suspected bowel obstruction

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAMUSCULAR / INTRAVENOUS **(PCP & ABOVE)**	17 years & older - 10 mg	Every 6 hours as required
	10 up to 17 years - 5 to 10 mg	
	12 months up to 10 years - 0.1 mg/kg (max = 5 mg/dose)	

NOTES
1. None

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M04.3 - ONDANSETRON *(ZOFRAN)***
	MEDICATION STANDING ORDER
Version date: 2023-09-05	Effective date: 2023-09-19 (0700 hours)

INDICATIONS
• Nausea and/or vomiting not responsive to other anti-emetics (all protocols except E30 - IERHA Palliative Care)

CONTRAINDICATIONS

• True allergy to ondansetron
• Pregnancy
• Previously diagnosed prolonged QT syndrome
• Do not administer concurrently with any of the following medications:
  ○ Amiodarone
  ○ Haloperidol

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(ICP & ABOVE)**	17 years & older - 8 mg	None
	10 up to 17 years - 0.15 mg/kg (max = 8 mg/dose)	

NOTES
• None

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Removal of ketorolac as contraindication • Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	M05 - EPINEPHRINE *(ADRENALIN)*	
	STANDING ORDER	**HIGH-ALERT MEDICATION** [1]
Version date: 2024-05-01	Effective date: 2024-05-15 (0700)	

INDICATIONS

- Known or suspected anaphylaxis
- Cardiopulmonary arrest
- Refractory asthma (not responding to, or patient cannot cooperate with / tolerate, inhaled bronchodilators)
- Moderate to severe croup

CONTRAINDICATIONS

- No contraindications when using for cardiac arrest or anaphylaxis
- When using for refractory asthma:
  - Chronic obstructive pulmonary disease (COPD)
  - Undifferentiated respiratory failure
  - Wheezing due to heart failure
  - Chest pain suspicious for myocardial ischemia
- When using for croup:
  - Stridor known or suspected to be due to epiglottitis, angioedema or a foreign body airway obstruction

DOSING

CARDIOPULMONARY ARREST

INTRAVENOUS / INTRAOSSEOUS (INTERMEDIATE WORK SCOPE):

- Use 0.1 mg/ml solution (“cardiac epi”)
- 10 yrs & older - administer 1 mg
- Up to 10 yrs - administer 0.01 mg/kg (single dose maximum = 1 mg)
- Inject by rapid push & follow with flush [2]
- Repeat every 3 - 5 min as required

ANAPHYLAXIS

AUTOINJECTOR (BASIC WORK SCOPE & ABOVE):

- 6 yrs & older - administer by orange device (0.3 mg)
- 1 up to 6 yrs - administer by green device (0.15 mg) [3]
- Inject to lateral thigh
- Repeat once if required

INTRAMUSCULAR (PRIMARY WORK SCOPE & ABOVE):

- Use 1 mg/ml solution
- 17 yrs & older - administer 0.5 mg
- Up to 17 yrs - administer 0.1 mg/kg (single dose maximum = 0.5 mg)
- Inject into deep lateral thigh
- Repeat every 10 - 15 min as required
- *See appendix A for pediatric dosing guide*

REFRACTORY ASTHMA [4]

INTRAMUSCULAR (PRIMARY WORK SCOPE & ABOVE):

- Use 1 mg/ml solution
- 17 yrs & older - administer 0.3 mg
- Up to 17 yrs - administer 0.1 mg/kg (single dose max = 0.3 mg)
- Inject into deep lateral thigh
- Repeat once in 20 min if required

CROUP

NEBULIZER (PRIMARY WORK SCOPE & ABOVE):

- Use 1 mg/ml solution
- Up to 6 yrs - 0.5 ml/kg (single maximum dose = 5 ml)
- Nebulize over 15 minutes
- Repeat once in 2 hrs if required
- Observe for rebound symptoms after administration [5]

NOTES

1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS).
2. Do not mix epinephrine with sodium bicarbonate.
3. If a pediatric-dose autoinjector is not available, use the adult device.
4. Use of parenteral epinephrine in asthma is an off-label indication, but is potentially useful in patients who cannot tolerate or cooperate with inhaled beta agonist.
5. The effects of nebulized epinephrine will generally last about 2 hours. Some children may experience a rebound with recurring or worsening symptoms after it wears off.

APPROVED BY	
	
EMS Medical Director	EMS Associate Medical Director

VERSION CHANGES (refer to X08 for change tracking)
• M05.1, M05.2, M05.3, and M05.4 combined • Dosing table format simplified • Removal of autoinjector for refractory asthma

APPENDIX A - ***ANAPHYLAXIS PEDIATRIC EPI DOSE QUICK REFERENCE GUIDE***

WT (kg)	*DOSE (mg)*	*VOL (ml)*	*WT (kg)*	*DOSE (mg)*	*VOL (ml)*	*WT (kg)*	*DOSE (mg)*	*VOL (ml)*
5 - 10	*0.1*	*0.1*	*21 - 25*	*0.25*	*0.25*	*36 - 40*	*0.4*	*0.4*
11 - 15	*0.15*	*0.15*	*26 - 30*	*0.3*	*0.3*	*41 - 45*	*0.45*	*0.45*
16 - 20	*0.2*	*0.2*	*31 - 35*	*0.35*	*0.35*	*≥ 46*	*0.5*	*0.5*

Shared health Soins communs Manitoba	**M06.1 - GLUCOSE**
	MEDICATION STANDING ORDER
Version date: 2023-07-20	Effective date: 2023-09-19 (0700 hours)

INDICATIONS
• *Confirmed* hypoglycemia • *Suspected* hypoglycemia in a known diabetic when a point-of-care blood glucose (POCG) measurement is not available

CONTRAINDICATIONS
• Not applicable

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
ORAL / BUCCAL [1] **(EMR & ABOVE)**	17 years & older - 25 to 50 gm	Every 10 minutes as required (max = 3 doses)
	10 up to 17 years - 12.5 to 25 gm	
	12 months up to 10 years - 12.5 gm	

NOTES
1. If the patient is unable to chew or swallow, has a depressed level of consciousness , or is unable to protect the airway (and other options for correcting hypoglycemia are not promptly available) turn the patient on their side & apply glucose paste to the inside of the lower cheek. Be alert for potential aspiration. 2. The amount of glucose may differ by preparation or manufacturers. Prompt administration is often more important than the exact dosing. Consult the package directions for the exact dosing recommendations. If uncertain, assume the following: • A commonly available solution contains approximately 25 grams of glucose per 100 ml. • A commonly available gel contains approximately 30 grams of glucose per tube. • Commonly available tablets contain approximately 4 grams of glucose per tablet.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
Revised administration table presents information for scope / route / dose more clearly •

Shared health Soins communs Manitoba	M06.2 - DEXTROSE	
	MEDICATION STANDING ORDER	HIGH ALERT MEDICATION [1]
Version date: 2023-12-13	Effective date: 2024-01-16 (0700)	

INDICATIONS

- Confirmed hypoglycemia
- Suspected hypoglycemia in a known diabetic when a point-of-care blood glucose (POCG) measurement is not immediately available

CONTRAINDICATIONS

- Not applicable

ROUTE (WORK SCOPE)	INITIAL DOSE	REPEAT DOSE
INTRAVENOUS **(PCP & ABOVE)**	10 years & older - 5 ml/kg of 10% solution (max = 250 ml/dose)	Every 5 to 10 minutes as required until POCG returns to normal range [3]
	72 hours up to 10 years - 5 ml/kg of 10% solution (max = 100 ml/dose)	
INTRAOSSEOUS **(ICP & ABOVE)**	10 years & older - 5 ml/kg of 10% solution (max = 250 ml/dose)	
	72 hours up to 10 years - 5 ml/kg of 10% solution (max = 100 ml/dose)	
ADULT ONLY WHEN LIMITED VOLUME IS REQUIRED	1 ml/kg of 50% solution (max = 50 ml/dose)	

NOTES

1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS).
2. Do not use 50% concentration in infants or children. A rapid increase in blood glucose can dramatically change serum osmolality and cause neurological injury, especially in infants and children.
3. Administer by slow push over 1 - 2 minutes.

4. Dextrose administration should be guided by blood glucose levels. If decreased LOC persists after one dose of dextrose and POCG measurement is still not available, paramedics may administer one additional empiric dose. Further dosing should be based on actual measurements.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Addition of Shared Health Provincial Clinical Standard for high-alert medications

Shared health Soins communs Manitoba	**M06.3 - GLUCAGON**
	MEDICATION STANDING ORDER
Version date: 2023-07-20	Effective date: 2023-09-19 (0700 hours)

INDICATIONS

- Confirmed hypoglycemia
- Suspected hypoglycemia in a known diabetic when a point-of-care glucose (POCG) measurement is not available

CONTRAINDICATIONS

- Not applicable

ROUTE (WORK SCOPE)	INITIAL DOSE	REPEAT DOSE
INTRANASAL [1] **(EMR & ABOVE)**	Greater than 20 kg - 1 mg	Once in 10 - 15 minutes if required
	Less than 20 kg - 0.5 mg	
INTRAMUSCULAR / INTRAVENOUS **(PCP & ABOVE)**	Greater than 20 kg - 1 mg	
	Less than 20 kg - 0.5 mg	
INTRAOSSEOUS **(ICP & ABOVE)**	Greater than 20 kg - 1 mg	
	Less than 20 kg - 0.5 mg	

NOTES

1. During the COVID pandemic IN administration requires extended PPE.
2. Administer IV/IO by slow push over 60 seconds.
3. Glucagon may cause significant nausea. Consider co-administration of antinauseant.
4. Ensure that the patient is eating or receives oral glucose / intravenous dextrose.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M06.4 - GLUCAGON POWDER *(BAQSIMI)***
	MEDICATION STANDING ORDER
Version date: 2023-07-22	Effective date: 2023-09-19 (0700 hours)

INDICATIONS

- **EMR:** Confirmed hypoglycemia (or suspected hypoglycemia in a known diabetic when blood glucose is not available) and oral glucose is not effective
- **PCP:** Confirmed hypoglycemia (or suspected hypoglycemia in a known diabetic when blood glucose is not available) and oral glucose is not effective and Intravenous access cannot be obtained

CONTRAINDICATIONS

- Not applicable

ROUTE (WORK SCOPE)	INITIAL DOSE	REPEAT DOSE
INTRANASAL **(EMR & ABOVE)**	4 years & older - 3 mg	None [2]

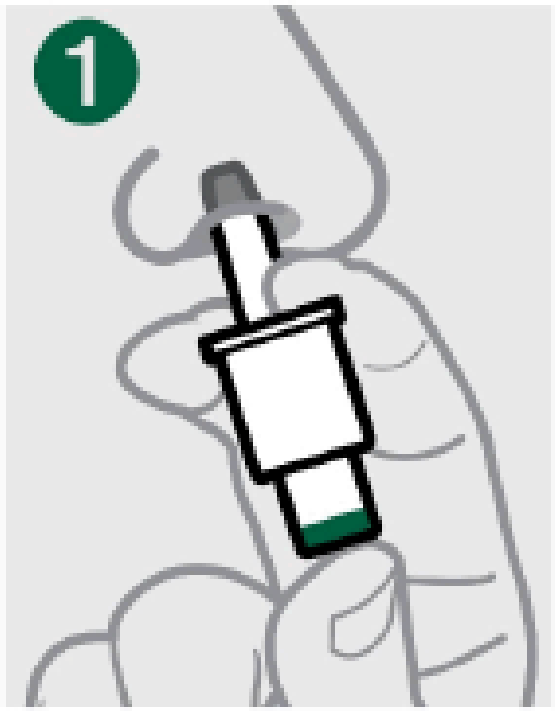
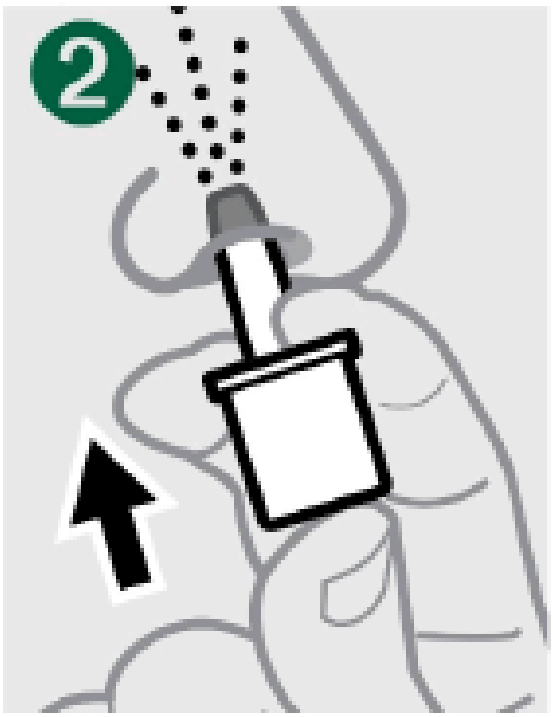
NOTES

1. During the COVID pandemic intranasal medication administration requires extended PPE.
2. If there is no response within 15 minutes, glucose or dextrose must be administered.
3. Glucagon may cause significant nausea. Consider co-administration of antinauseant.
4. Ensure that the patient is eating or receives oral glucose / intravenous dextrose after glucagon administration.

APPROVED BY

Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

APPENDIX A: ADMINISTRATION OF *BAQSIMI* GLUCAGON NASAL POWDER.	
STEP #1: Remove the shrink wrap by pulling on the red stripe. Open the lid & remove the device from the tube. DO NOT TEST BEFORE USE.	
STEP #2: Hold the device between your thumb and fingers. DO NOT PRESS THE PLUNGER UNTIL YOU ARE READY TO ADMINISTER.	
STEP #3: Insert the tip gently into one nostril until your fingers touch the outside of the nose. 	STEP #4: Push the plunger all the way in. The dose is complete when the green line is no longer showing. 

Shared health Soins communs Manitoba	M07.1 - MIDAZOLAM *(VERSED)*	
	MEDICATION STANDING ORDER	**HIGH-ALERT MEDICATION [1]**
Version date: 2023-12-14	Effective date: 2024-01-16 (0700)	

INDICATIONS
• Active seizures • Chemical restraint • Alcohol / benzodiazepine withdrawal • Stimulant toxicity • Advanced airway maintenance • Procedural sedation

CONTRAINDICATIONS
• True allergy to midazolam • Uncorrected hypotension • Respiratory depression

SEIZURES		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRANASAL **(PCP & ABOVE)**	10 years & older - 5 mg 12 months to 10 years - 0.2 mg/kg (max = 5 mg/dose)	Once in 10 minutes if seizure persists or recurs (use alternate nostril)
INTRAMUSCULAR **(PCP & ABOVE)**	10 years & older - 5 mg 12 months to 10 years - 0.2 mg/kg (max = 5 mg/dose)	Every 15 to 30 minutes as required
INTRAVENOUS **(PCP & ABOVE)** INTRAOSSEOUS **(ICP ONLY)**	12 months & older - 0.05 to 0.1 mg/kg (max = 5 mg/dose)	Every 5 minutes as required

CHEMICAL RESTRAINT / WITHDRAWAL / STIMULANT TOXICITY		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAMUSCULAR **(PCP & ABOVE)**	10 years & older - 5 mg	Every 15 to 30 minutes as required
	12 months to 10 years - 0.2 mg/kg (max = 5 mg/dose)	
INTRAVENOUS **(PCP & ABOVE)**	12 months & older - 0.05 to 0.1 mg/kg (max = 5 mg/dose)	Every 20 minutes as required (max = 20 mg/hr)
INTRAOSSEOUS **(ICP ONLY)**		

AIRWAY MAINTENANCE		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(PCP & ABOVE)**	12 months & older - 0.05 to 0.1 mg/kg (max = 5 mg/dose)	Every 3 - 5 minutes as required (no max)
INTRAOSSEOUS **(ICP ONLY)**		

PROCEDURAL SEDATION		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(ICP ONLY)**	12 months & older - 0.05 to 0.1 mg/kg (max = 5 mg/dose)	Every 3 - 5 minutes to desired level of sedation

NOTES
1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS). 1. Administer IV / IO by slow push over 60 second. 2. During the COVID pandemic IN administration requires extended PPE. 3. Benzodiazepines may have more pronounced respiratory and central nervous system effects in the elderly, especially if frail or compromised. Consider smaller doses and slower administration in patients greater than 75 years of age. 4. Respiratory depression and hypotension can occur after administration, especially in the post-seizure period. Continuously monitor respiratory and cardiac status. Providers must be prepared to manage the airway, support ventilations, and treat hypotension as required. 5. For chemical restraint consider a second agent if patient requires more than 20 mg per hour or contact the Virtual Emergency Care & Transport Resources Service (VECTRS) for on line medical support (OLMS).

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Addition of Shared Health Provincial Clinical Standard for high-alert medications

Shared health Soins communs Manitoba	**M07.5 - LORAZEPAM *(ATIVAN)***
	MEDICATION STANDING ORDER
Version date: 2023-07-18	Effective date: 2023-09-19 (0700 hours)

INDICATIONS
• Severe anxiety or agitation that is interfering with, or may interfere with, the management and safe transport of the patient

CONTRAINDICATIONS
• True allergy to lorazepam • Uncorrected hypotension • Respiratory depression • Central nervous system (CNS) depression

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
ORAL / SUBLINGUAL **(PCP & ABOVE)**	75 years & older - 1 mg	Once if required
	17 up to 75 years – 2 mg	
	10 up to 17 years - 1 mg	

NOTES
1. Respiratory depression can occur even after oral administration. Frequently reassess CNS and respiratory status. Providers must be prepared to manage the airway and support ventilations as required. 2. Benzodiazepines may have more pronounced respiratory and central nervous system effects in the elderly, especially if frail or compromised.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M09 - FUROSEMIDE *(LASIX)***
	MEDICATION STANDING ORDER
Version date: 2023-07-18	Effective date: 2023-09-19 (0700 hours)

INDICATIONS
• Heart failure with evidence of pulmonary edema

CONTRAINDICATIONS
• True allergy to furosemide • Hypotension • Dehydration

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(ICP & ABOVE)**	Currently on furosemide - 40 to 80 mg	None
	Not currently on furosemide - 20 to 40 mg	

NOTES
1. Administer by slow push over 90 seconds. 2. Patients with known renal failure should receive the 80 mg maximum dose.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M11 - NALOXONE *(NARCAN)***
	MEDICATION STANDING ORDER
Version date: 2023-07-21	Effective date: 2023-09-19 (0700 hours)

INDICATIONS
• Respiratory depression due to known or suspected opioid toxicity from ingestion or administration

CONTRAINDICATIONS
• Not applicable

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRANASAL **(EMR & ABOVE)**	All ages - 2 mg (one autoinjector dose) [1]	Every 2 to 3 minutes as required (no maximum number of doses)
INTRAMUSCULAR **(PCP & ABOVE)**	5 years & older - 0.4 to 2 mg	
	72 hours up to 5 years - 0.1 mg/kg (max = 2 mg/dose)	
INTRAVENOUS **(PCP & ABOVE)**	5 years & older - 0.1 to 2 mg [4]	
	72 hours up to 5 years - 0.1 mg/kg (max = 2 mg/dose)	
INTRAOSSEOUS **(ICP & ABOVE)**	5 years & older - 0.1 to 2 mg [4]	
	72 hours up to 5 years - 0.1 mg/kg (max = 2 mg/dose)	

NOTES
1. During the COVID pandemic IN administration requires extended PPE.
2. If nasal spray is not available, administer 1 ml of injectable solution to each nostril delivered with mucosal atomizer device.
3. Use caution when administering by IM route if known bleeding disorder or anticoagulation is present.

4. For patients who are chronic opiate / opioid users, paramedics may titrate IV / IO naloxone to achieve adequate respirations without precipitating acute withdrawal.
5. During prolonged transports, repeat dosing (every 20 to 60 minutes) may be required if the duration of action of the opioid exceeds that of naloxone.
6. Multiple doses at the higher end of the dosing range may be required for known or suspected high potency opioids (eg. fentanyl, carfentanil).

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M13 - HYDROCORTISONE**
	MEDICATION STANDING ORDER
Version date: 2023-10-30	Effective date: 2023-10-30 (0700)

INDICATIONS
• Anaphylaxis • Asthma • Known or suspected acute adrenal insufficiency (adrenal crisis) with known chronic adrenal insufficiency

CONTRAINDICATIONS
• Not applicable

ANAPHYLAXIS / ASTHMA		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(PCP & ABOVE)**	All ages - 5 mg/kg (max = 100 mg/dose)	None
INTRAOSSEOUS **(ICP & ABOVE)**		

ADRENAL CRISIS		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS INTRAMUSCULAR SUBCUTANEOUS **(PCP & ABOVE)**	All ages - 2 mg/kg (max = 100 mg/dose)	None
INTRAOSSEOUS **(ICP & ABOVE)**		

NOTES:
1. Give IV or IO by slow push over 2 minutes. 2. Patients with known adrenal insufficiency may have their own supply of prepared doses of hydrocortisone for emergencies, and this can be substituted when available.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Correction - asthma added to medication dosing table to align with indications • IM & SC added for adrenal crisis

Shared health Soins communs Manitoba	M14 - AMIODARONE	
	MEDICATION STANDING ORDER	HIGH-ALERT MEDICATION [1]
Version date: 2023-12-13	Effective date: 2024-01-16 (0700)	

INDICATIONS
• Cardiac arrest due to ventricular fibrillation (VF) or pulseless ventricular tachycardia (pVT) that has not responded to at least one shock, one cycle CPR, and one dose of epinephrine • Return of spontaneous circulation (ROSC) after VF / pVT arrest when amiodarone has not yet been given • Stable wide complex tachycardia (WCT) or ventricular tachycardia (VT) when the transport time is long & the patient is at risk of deterioration [4]

CONTRAINDICATIONS
• Unstable WCT or VT must proceed straight to cardioversion

CARDIAC ARREST (VENTRICULAR TACHYCARDIA / VENTRICULAR FIBRILLATION)		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(ICP ONLY)**	17 years & older - 300 mg	17 years & older - 150 mg once in 5 minutes (max = 450 mg total)
	12 months to 17 years - 5 mg/kg (max = 300 mg/dose)	12 months to 17 years - 5 mg/kg every 5 min (max = 3 doses total)
INTRAOSSEOUS **(ICP ONLY)**	17 years & older - 300 mg	17 years & older - 150 mg once in 5 minutes (max = 450 mg total)
	12 months to 17 years - 5 mg/kg (max = 300 mg/dose)	12 months to 17 years - 5 mg/kg every 5 min (max = 3 doses total)

ROSC (AMIODARONE NOT GIVEN DURING RESUSCITATION) [2]		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(ICP ONLY)**	17 years & older: 300 mg over 10 minutes	None
	12 months to 17 years: 5 mg/kg over 10 minutes (max = 300 mg/dose)	
INTRAOSSEOUS **(ICP ONLY)**	17 years & older: 300 mg over 10 minutes	
	12 months to 17 years: 5 mg/kg over 10 minutes (max = 300 mg/dose)	

STABLE VENTRICULAR TACHYCARDIA / UNDIFFERENTIATED WIDE-COMPLEX TACHYCARDIA [2]		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(ICP ONLY)**	17 years & older: 150 mg over 10 minutes [2]	Consult OLMS [3]

NOTES
1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS).
2. The administration rate differs between cardiac arrest and nonarrest. During arrest administer by rapid push, follow with a saline flush, and elevate the arm for 10 to 20 seconds if possible. In non-arrest inject by slow push over 10 minutes.
3. With recurrent arrhythmias management can become very complex. Consult on-line medical support (OLMS) at any time.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Addition of Shared Health Provincial Clinical Standard for high-alert medications

Shared health Soins communs Manitoba	**M15 – SALBUTAMOL *(VENTOLIN)***
	MEDICATION STANDING ORDER
Version date: 2023-09-05	Effective date: 2023-09-19 (0700 hrs)

INDICATIONS
• Acute exacerbation of known asthma • Acute exacerbation of chronic obstructive pulmonary disease (COPD) • Dyspnea or respiratory distress where wheezing can be heard, or bronchospasm is otherwise suspected • Acute anaphylaxis, or severe allergic reaction with difficulty breathing or audible wheezing
• Known or suspected hyperkalemia as a temporizing measure when vascular access is not attainable [2]

CONTRAINDICATIONS
• Not applicable

ASTHMA / COPD / BRONCHOSPASM		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
METERED-DOSE INHALER [1] **(EMR & ABOVE)**	All ages - 2 to 8 inhalations (puffs) depending on severity	As required (no maximum) [3]
NEBULIZER [2] **(PCP & ABOVE)**	Unable to comply (up to 5 years of age): • Less than 20 kg - 2.5 mg • More than 20 kg - 5 mg	

ANAPHYLAXIS		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
METERED-DOSE INHALER [1] **(EMR & ABOVE)**	All ages - 8 inhalations (puffs) depending on severity	As required (no maximum) [3]
NEBULIZER [2] **(PCP & ABOVE)**	Unable to comply (up to 5 years of age): • Less than 20 kg - 2.5 mg • More than 20 kg - 5 mg	

HYPERKALEMIA [4]		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
METERED-DOSE INHALER **(PCP & ABOVE)**	10 years & older – 16 inhlations	Once in 5 minutes if ECG signs persist & every 15 - 30 minutes if ECG signs recur

NOTES

1. Always use a spacer device (e.g. aero-chamber) with the metered-dose inhaler (MDI). Both are for single patient use and must be discarded after use.
2. For young children who may not cooperate with MDI administration, the risk of aersol generation is likely lower with nebulizer administration.

   Extended PPE is required for administration by either MDI or nebulizer during the COVID pandemic.
3. Paramedics should titrate to response. As respiratory status improves, frequency of administration can be reduced.
4. Salbutamol has a minor, transient effect on serum potassium, and should never be administered as sole therapy for hyperkalemia. It may be useful as a temporizing measure until vascular access is established and other therapy administered.

   Administration by MDI instead of nebulizer is not well studied. Sixteen inhalations (1600 mg) may be roughly equivalent to 10 mg by nebulizer in dosage delivery.

   When salbutamol is not available, Combivent Respimat® may be substituted with dosing based on the salbutamol content.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)

- Nebulizer may be used in young children who cannot comply with MDI administration
- Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M16 - OXYTOCIN *(SYNTOCINON)***	
	MEDICATION STANDING ORDER	**HIGH ALERT MEDICATION [1]**
Version date: 2023-12-13	Effective date: 2024-01-16 (0700)	

INDICATIONS

- All post-partum patients will receive an IV or IM bolus
- Patients with ongoing significant blood loss after delivery should receive a continuous infusion in addition to the bolus dose

CONTRAINDICATIONS

- Multiple gestations before all fetuses are delivered
- Uterine inversion

ROUTE (WORK SCOPE)	INITIAL DOSE	REPEAT DOSE
INTRAMUSCULAR / INTRAVENOUS **(PCP & ABOVE)**	10 years & older – 10 units	None
INTRAOSSEOUS **(ICP & ABOVE)**		
CONTINUOUS INFUSION **(PCP & ABOVE)**	10 years & older - 10 units per hour x 4 hours [4]	Not apllicable

NOTES

1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS).
2. Administer IV / IO by slow push over 2 minutes.
3. Use caution when administering IM if known bleeding disorder or anticoagulation is present.
4. Mix 40 units of oxytocin in one liter of normal saline & run at 250 ml/hr and administer with an infusion pump. If a pump is not available, ensure a drip-rate for 250 ml/hr.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Addition of Shared Health Provincial Clinical Standard for high-alert medications

Shared health Soins communs Manitoba	M17 - KETAMINE	
	STANDING ORDER	HIGH-ALERT MEDICATION [1]
Version date: 2024-04-15	Effective date: 2024-05-15 (0700)	

INDICATIONS

- Moderate to severe pain from an acute illness, injury, or the exacerbation of a chronic condition:
  - As an adjunct when standard analgesic agents alone have not been effective
  - As an alternative when standard analgesic agents are contraindicated
- INTRANASAL: Short-term analgesia for extrication when vascular access cannot be obtained

CONTRAINDICATIONS

- Uncorrectable severe hypoperfusion
- Risk of respiratory or CNS depression
- Previous emergence reaction from ketamine
- True allergy to ketamine

DOSING

ANALGESIA

INTRAVENOUS / INTRAOSSEOUS (INTERMEDIATE WORK SCOPE & ABOVE):

- 12 months & older - 0.5 mg/kg (administer by slow push over 1 - 2 min)
- Follow with 0.25 mg/kg after 10 min if necessary to achieve adequate analgesia
- Repeat 0.25 to 0.5 mg/kg every 30 min as required to maintain adequate analgesia
- Ketamine is not compatible with Ringer's lactate solution

INTRAMUSCULAR (INTERMEDIATE WORK SCOPE & ABOVE):

- 12 months & older - 0.5 mg/kg
- Follow with 0.25 mg/kg after 15 min if necessary to achieve adequate analgesia
- Repeat 0.25 to 0.5 mg/kg every 60 min as required to maintain adequate analgesia

EXTRICATION WITHOUT VASCULAR ACCESS

INTRANASAL (PRIMARY WORK SCOPE & ABOVE):

- 12 months & older - 0.5 to 1 mg/kg
- Follow with 0.25 to 0.5 mg/kg after 10 min if necessary to achieve adequate analgesia
- Repeat 0.25 to 0.5 mg/kg every 30 min as require to maintain adequate analgesia

NOTES
1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS). 2. In a hemodynamically compromised patient who is compensating, ketamine can still cause hypotension and deterioration. Priority should be given to adequate resuscitation before administering analgesia. 3. Ketamine may enhance the effects of CNS depressants such as the opioid analgesics. Consider smaller dosing if given with or after opioids. 4. INTRANASAL ADMINISTRATION WITHOUT VASCULAR ACCESS: • Should not be used for routine analgesia. • Use extreme caution if administering for painful extrication, as hypotension may occur in a hemorrhaging patient who is compensating.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Removal of requirement for IV access with IN administration, but reminder re administration without vascular access

Shared health Soins communs Manitoba	M18 - SODIUM BICARBONATE (8.4%)	
	MEDICATION STANDING ORDER	HIGH-ALERT MEDICATION [1]
Version date: 2023-12-19	Effective date: 2024-01-16 (0700)	

INDICATIONS
• Cardiac arrest due to known or suspected tricyclic antidepressant (TCA) overdose • Known TCA overdose with malignant cardiac rhythm or unstable hemodynamics • Hyperkalemia (refer to M10)

CONTRAINDICATIONS
• Not applicable

CARDIAC ARREST / UNSTABLE TCA OVERDOSE		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS / INTRAOSSEOUS **(ICP & ABOVE)**	17 years & older – 150 mEq (150 ml)	None
	72 hours to 17 years - 2 mEq/kg (max = 150 ml)	

HYPERKALEMIA		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS / INTRAOSSEOUS **(ICP & ABOVE)**	10 years & older - 50 to 100 mEq (50 - 100 ml)	Once in 5 minutes if ECG signs persist & every 30 - 60 minutes if ECG signs recur

NOTES
1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS). 2. During cardiac arrest administer bicarbonate by rapid push followed by saline flush. In non-arrest, administer by slow push over 2 to 3 minutes each with continuous cardiac monitoring.

3. Sodium bicarbonate is not compatible with calcium salts (flush intravenous tubing well between administration of calcium and bicarbonate).

LINKS
M10 – HYPERKALEMIA THERAPY

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Addition of Shared Health Provincial Clinical Standard for high-alert medications

Shared health Soins communs Manitoba	**M21 - NITROGLYCERIN**
	MEDICATION STANDING ORDER
Version date: 2023-07-25	Effective date: 2023-09-19 (0700 hours)

INDICATIONS

- Chest pain or discomfort consistent with or suspicious for myocardial ischemia
- Pulmonary edema

CONTRAINDICATIONS

- Hypotension (SBP less than 90 mmHg)
- Known right ventricular infarct (RVI)
- Use of any of the following within the last 24 hours
  - VIAGRA (sildefanil)
  - CIALIS (tadalafil)
  - LEVITRA (vardenafil)
- Increased intracranial pressure
- Hypersensitivity to nitroglycerin

ROUTE (WORK SCOPE)	INITIAL DOSE	REPEAT DOSE
SUBLINGUAL **(PCP & ABOVE)**	17 years & older - 0.4 mg	Every 5 minutes as required
TOPICAL / TRANSDERMAL **(PCP & ABOVE)**	17 years & older - 0.4 - 0.8 mg/hr	None

NOTES

1. If the SBP drops more than 30 mmHg below the pre-administration (baseline) value, do not administer further sublingual doses (and remove topical nitroglycerin)
2. Use with caution if any of the following is known or suspected:
   a. Inferior myocardial infarction, with suspected right ventricular involvement
   b. Marked bradycardia (HR < 50) or tachycardia (HR > 120)
   c. Volume depletion
   d. Aortic or mitral stenosis
   e. Hypertrophic cardiomyopathy with LV outflow obstruction

f. Constrictive pericarditis or pericardial tamponade

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M22 - OLANZAPINE**
	MEDICATION STANDING ORDER
Version date: 2023-07-25	Effective date: 2023-09-19 (0700 hrs)

INDICATIONS
• Known or suspected methamphetamine psychosis

CONTRAINDICATIONS
• Uncooperative patient • Hypotension • Seizure or acute neurological deficit • Chest pain or dyspnea suspicious for acute cardiac syndrome (ACS)

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
ORAL **(PCP & ABOVE)**	12 years & older - 10 mg	None

NOTES
1. Patients who have taken methamphetamine may rapidly develop extreme paranoia and demonstrate violent behavior with enhanced physical strength. After the onset of psychosis, forced medication administration may be difficult. Administration of olanzapine while the patient is cooperative may lessen the severity of psychotic symptoms. 2. Olanzapine is a chemical restraint and any regional restraint policy should be followed when administering.

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director – Provincial EM/SPT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	M24 - MAGNESIUM SULFATE (20%)	
	MEDICATION STANDING ORDER	HIGH ALERT MEDICATION [1]
Version date: 2023-12-13	Effective date: 2024-01-16 (0700)	

INDICATIONS
• Cardiac arrest due to torsades de pointes • Known or suspected preeclampsia / eclampsia • Severe asthma not responding to bronchodilators

CONTRAINDICATIONS
• Myasthenia gravis (when treating preeclampsia / eclampsia)

CARDIAC ARREST / TORSADES DE POINTES		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS / INTRAOSSEOUS **(ICP & ABOVE)**	17 years & older - 1 to 2 grams	None
	12 months up to 17 years - 25 to 50 mg/kg (max = 2 gm)	

SEVERE ASTHMA		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS / INTRAOSSEOUS **(ICP & ABOVE)**	17 years & older - 2 grams over 15 min	None
	12 months up to 17 years - 50 mg/kg (max = 2 gm) over 15 min	

PREECLAMPSIA / ECLAMPSIA - SEIZURE PROPHYLAXIS		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(PCP & ABOVE)**	10 years & older - 4 grams over 15 minutes	None
INTRAOSSEOUS (**ICP & ABOVE)**		

ECLAMPSIA - SEIZURE TREATMENT / PATIENT HAS NOT RECEIVED PROPHYLAXIS		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(PCP & ABOVE)**	10 years & older - 4 grams over 10 minutes	2 grams over 5 minutes up to twice more if seizure(s) persist or recur (cumulative total = 8 gm)
INTRAOSSEOUS (**ICP & ABOVE)**		

ECLAMPSIA - SEIZURE TREATMENT / PATIENT HAS RECEIVED PROPHYLAXIS		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(PCP & ABOVE)**	10 years & older - 2 grams over 5 minutes	2 grams once over 5 minutes if seizure(s) persist or recur (cumulative total = 8 gm)
INTRAOSSEOUS (**ICP & ABOVE)**		

NOTES
1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS). 2. The administration rate differs between cardiac arrest and preeclampsia / eclampsia. During arrest administer by rapid push, follow with a saline flush, and elevate the arm for 10 to 20 seconds if possible. In preeclampsia / eclampsia rapid injection may cause magnesium toxicity and respiratory muscle weakness. Administer over 15 - 20 minutes. 3. In patients with preeclampsia without severe features the incidence of seizures is low. Consultation with on-line medical support (OLMS) is recommended before administration. 4. Magnesium in excess of 8 grams in an hour may result in magnesium toxicity. Monitor frequently for signs of magnesium toxicity. Calcium chloride may be given to counteract magnesium toxicity.

5. Loss of deep tendon reflexes is the first sign of magnesium toxicity. Other manifestations include slurred speech, decreased level of consciousness, decreased muscle tone, and hypoventilation. DO NOT GIVE IF DEEP TENDON REFLEXES ARE DEPRESSED OR RESPIRATORY RATE IS 12 OR LESS

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Medical Director - Provincial EMS/PT	Associate Medical Director – Provincial EMS/SPT

VERSION CHANGES (refer to X08 for change tracking)
• Addition of Shared Health Provincial Clinical Standard for high-alert medications

Shared health Soins communs Manitoba	**M25 - LIDOCAINE (10 mg/ml)**
	MEDICATION STANDING ORDER
Version date: 2023-07-22	Effective date: 2023-09-19 (0700 hours)

INDICATIONS
• Pain management from the ongoing infusion of medications or crystalloid solution into an intraosseous (IO) device in an awake or awakening patient

CONTRAINDICATIONS
• Evidence of extravasation

ROUTE (WORK SCOPE)	**INITIAL DOSE** [2]	**REPEAT DOSE**
INTRAOSSEOUS **(ICP & ABOVE)**	10 years & older - 50 mg	If initial pain relief is not adequate repeat half-dose; then every 30 - 45 minutes as required (max = 3 mg/kg)
	72 hours up to 10 years - 0.5 mg/kg (max = 50 mg/dose)	

NOTES
1. Use preservative-free 1% lidocaine.
2. Infuse into the device over 120 seconds. Allow to dwell for 60 seconds. Flush with 2.5 to 10 ml of sterile saline
3. Monitor closely for any signs of extravasation at or near the IO insertion site.

APPROVED BY	
Medical Director – Provincial EMS/PT	Associate Medical Director – Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	M26 - CALCIUM CHLORIDE (100 mg/ml - 10%)	
	MEDICATION STANDING ORDER	HIGH-ALERT MEDICATION [1]
Version date: 2023-12-13	Effective date: 2024-01-16 (0700)	

INDICATIONS
• Hyperkalemia • Magnesium toxicity

CONTRAINDICATIONS
• None

MAGNESIUM TOXICITY		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(PCP & ABOVE)**	10 years & older - 1 gram (10 ml)	None
INTRAOSSEOUS **(ICP & ABOVE)**		

HYPERKALEMIA		
ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS / INTRAOSSEOUS **(ICP & ABOVE)**	10 years & older - 1 to 2 gm (10 - 20 ml)	Once in 5 minutes if ECG signs persist & every 30 - 60 minutes if ECG signs recur

NOTES
1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS). 2. During cardiac arrest administer by rapid push followed by saline flush. 3. For magnesium toxicity administer by slow push over 3 to 5 minutes

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director – Provincial EMS/SPT

VERSION CHANGES (refer to X08 for change tracking)
• Addition of Shared Health Provincial Clinical Standard for high-alert medications

Shared health Soins communs Manitoba	**M28 - TRANEXAMIC ACID (TXA)**
	MEDICATION STANDING ORDER
Version date: 2023-07-17	Effective date: 2023-09-19 (0700 hours)

INDICATIONS
• Major trauma and hemorrhage with or without signs of shock within three hours of injury • Post partum hemorrhage [3] • Nontraumatic hemorrhagic with signs of shock in certain situations [5]

CONTRAINDICATIONS
• True allergy to tranexamic acid

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(PCP & ABOVE)**	12 years & older - 1 gram	None
	1 up to 12 years - 15 mg/kg (max = 1 gram)	
INTRAOSSEOUS **(ICP & ABOVE)**	12 years & older - 1 gram	
	1 up to 12 years - 15 mg/kg (max = 1 gram)	

NOTES
1. Rapid aministration may cause hypotension. Mix 1 gram in 100 ml IV fluid and infuse over ten minutes. 2. TXA may be administered in Ringer's lactate or 0.9% saline solution. 3. TXA cannot be given in the same line as oxytocin. 4. Limited data is available to support the efficacy in infants with traumatic hemorrhage. The infusion volume may have to be adjusted in infants less than 5 kg. Paramedics should contact OLMS to discuss administration. 5. There is limited evidence to support the use of tranexamic acid in shock from nontraumatic hemorrhage, but it may be of benefit in some situations. On-line medical support must be consulted before administration.

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Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	M34 - HALOPERIDOL *(HALDOL)*	
	10 years & older	MEDICATION
Version date: 2023-07-17		Effective date: 2023-09-19 (0700 hrs)

INDICATIONS
• Acute agitation or combative behavior where the safety of the patient, health care providers and the public at large is or may be at risk

CONTRAINDICATIONS
• Known or suspected neuroleptic malignant syndrome • Known or suspected shock • Known or suspected prolonged QT or prolonged QT syndrome • Active seizures or suspected or known postictal delirium

ROUTE (WORK SCOPE)	INITIAL DOSE	REPEAT DOSE
INTRAMUSCULAR / INTRAVENOUS **(ICP & ABOVE)**	75 years & older - 2.5 to 5 mg	None
	17 up to 75 years – 5 to 10 mg	Once in 15 min if required
	10 up to 17 years – 2.5 to 5 mg	

NOTES
1. Always treat correctable underlying causes of agitation or combative behavior, such as hypoglycemia or hypoxemia, before administering haloperidol.

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Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M37.1- ACETYLSALICYLIC ACID *(ASA)***
	MEDICATION STANDING ORDER
Version date: 2023-07-22	Effective date: 2023-09-19 (0700 hrs)

INDICATIONS
• Known or suspected acute coronary syndrome (ACS)

CONTRAINDICATIONS
• Active bleeding that cannot be controlled by basic measures or at a non-compressible site • True ASA allergy • Known ASA-induced asthma

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
ORAL **(EMR & ABOVE)**	17 years & older – 160 mg	None

NOTES:
1. Instructing the patient to chew the medication will result in faster absorption.

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VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M37.2 - TICAGRELOR *(BRILINTA)***
	MEDICATION STANDING ORDER
Version date: 2023-07-23	Effective date: 2023-09-19 (0700 hrs)

INDICATIONS
• Known or suspected ST elevation myocardial infarction (STEMI) if patient is going directly to primary coronary intervention (PCI) and only after consultation with the Code-STEMI physician

CONTRAINDICATIONS
• Patient may be candidate for fibrinolysis with TNK • Active bleeding that cannot be controlled by basic measures or at a non-compressible site • True allergy to ticagrelor

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
ORAL **(PCP & ABOVE)**	17 years & older - 180 mg (2 tablets)	None

NOTES
1. None

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Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M38- KETOROLAC *(TORADOL)***
	MEDICATION STANDING ORDER
Version date: 2023-07-24	Effective date: 2023-09-19 (0700 hrs)

INDICATIONS
• Moderate to severe pain from an acute illness, injury, or an exacerbation of a chronic condition that is significant enough to require analgesic to facilitate safe and comfortable patient transport

CONTRAINDICATIONS
• Known / suspected acute coronary syndrome (ACS) • Known / suspected intracranial injury or hemorrhage • True allergy to ketorolac • History of aspirin (ASA) induced asthma or bronchospasm • Pregnancy • Known renal failure

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAMUSCULAR / INTRAVENOUS **(PCP & ABOVE)**	17 years & older – 30 mg	None
	2 up to 17 years - 0.5 mg/kg (max = 30 mg)	
	12 months up to 2 years - 0.25 mg/kg (max = 15 mg)	
INTRAOSSEOUS **(ICP & ABOVE)**	17 years & older – 30 mg	
	2 up to 17 years - 0.5 mg/kg (max = 30 mg)	
	12 months up to 2 years - 0.25 mg/kg (max = 15 mg)	

NOTES
1. Ketorolac may have a minor effect on coagulation and bleeding time.

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Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M39 - ATROPINE**
	MEDICATION STANDING ORDER
Version date: 2023-07-23	Effective date: 2023-09-19 (0700 hours)

INDICATIONS

• All of the following:
  ○ A sustained heart rate less than the age-appropriate minimum
  ○ Signs of poor perfusion
  ○ The poor perfusion is known or suspected to be due to the bradycardia

CONTRAINDICATIONS
• True hypersensitivity to atropine

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS / INTRAOSSEOUS **(ICP & ABOVE)**	10 years & older- 1 mg	Every 5 min as required (max = 3 doses)
	72 hours up to 10 years - 0.02 mg/kg (max = 0.5 mg/dose)	Once in 5 min as required (max = 1 mg)

NOTES
1. Administer by rapid push, followed with saline flush. 2. Atropine may not be effective in type II second-degree or third-degree AV blocks. Be prepared to proceed to transcutaneous pacing (TCP). 3. Atropine is usually ineffective in heart transplant patients due to lack of cholinergic innervation, although reinnervation may occur over years. If required, atropine may be used cautiously but observe for paradoxical slowing of the heart rate and high-degree AV block.

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Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Revised administration table presents information for scope / route / dose more clearly

Shared health Soins communs Manitoba	**M43 - ENOXAPARIN *(LOVENOX)***	
	MEDICATION STANDING ORDER	**HIGH ALERT MEDICATION [1]**
Version date: 2023-12-13	Effective date: 2024-01-16 (0700)	

INDICATIONS
• Known or suspected ST elevation myocardial infarction (STEMI) if the patient is going directly to primary coronary intervention (PCI) and only after consultation with the Code-STEMI physician

CONTRAINDICATIONS
• Patient may be candidate for fibrinolysis with TNK • Known hypersensitivity to enoxaparin • Patient is known to be on an anticoagulant and has taken it that day • History of heparin-induced thrombocytopenia (HIT) within the past 100 days • Active bleeding that cannot be controlled by basic measures or at a non-compressible site

ROUTE (WORK SCOPE)	**INITIAL DOSE**	**REPEAT DOSE**
INTRAVENOUS **(PCP & ABOVE)**	Less than 75 years - 0.5 mg/kg (max = 50 mg)	None
SUBCUTANEOUS **(PCP & ABOVE)**	Less than 75 years - 1 mg/kg (max = 100 mg) [2]	
	More than 75 years – 0.75 mg/kg (max = 75 mg) [3]	

NOTES
1. ERS HIGH-ALERT MEDICATION: Refer to Shared Health Provincial Clinical Standard - Safety Controls for High-Alert Medications (refer to A03 - HIGH ALERT MEDICATIONS). 2. There is an increased risk of intracranial bleeding with intravenous enoxaparin in patients over 75 years of age. • Patients under 75 years of age should receive subcutaneous heparin only f IV access cannot be obtained. • Patients over 75 years of age should r4eceive only subcutaneous enoxaparin at a reduced dose. 3. The dose should be rounded off to the nearest 10 mg

APPROVED BY	
	
Medical Director - Provincial EMS/PT	Associate Medical Director - Provincial EMS/PT

VERSION CHANGES (refer to X08 for change tracking)
• Addition of Shared Health Provincial Clinical Standard for high-alert medications