Ontario Base Hospital Group
Education Subcommittee

MEMORANDUM

TO: **Ontario Paramedics**

FROM: **Ontario Base Hospital Group Education Subcommittee (OBHG ESC)**

DATE: **January 12, 2022**

RE: **Advanced Life Support Patient Care Standards (ALS PCS) Version 4.9 Update — Impact on Clinical Practice and Educational Summary**

On February 1, 2022, an updated version of the ALS PCS comes into force by the Ministry of Health (MOH). This communication memo has been developed in addition to the summary of changes document released by the MOH and will focus on the impact to clinical practice to patient care within the ALS PCS version 4.9 utilized by Ontario paramedics. It is the responsibility of the paramedic to ensure they have reviewed all directives in their entirety.

Contents

1. Opioid Toxicity Medical Directive

Changes were made to the Opioid Toxicity Medical Directive to align care with current best practices as well as expanding the age indication to include pediatrics.

INDICATIONS — REVISED

Inability to adequately ventilate OR persistent need to assist ventilations

Impact to Clinical Practice
Allows for the administration of naloxone to patients who are not responding to assisted ventilations or in situations whereby the provision of persistent ventilations is difficult (i.e. challenging extrications, prolonged transport times).

CONDITIONS — NEW

Age ≥ 24 hours

Impact to Clinical Practice
Allows for treatment of the pediatric population who are experiencing suspected opioid toxicity with respiratory depression and unsuccessful ventilatory support (inability to adequately ventilate or persistent need to assist ventilations).

CONTRAINDICATIONS — REMOVED

Removed 'uncorrected hypoglycemia'

Impact to Clinical Practice
Airway management is paramount and should not be delayed to check for hypoglycemia when there is a suspected opioid overdose. Considerations for treatment should be airway management (ventilatory support) followed by naloxone administration where appropriate. If the patient does not respond to airway management and naloxone, consider glucometry to rule out other potential reversible causes.

TREATMENT — REVISED

- Change in order of route preference (IV/IO; IM; IN; SC)
- IM dosing is now decreased to 0.4 mg
- IN dosing is now increased to 2–4 mg
- Dosing interval for ALL routes is 5 minutes

Impact to Clinical Practice
Route specific dosing to align with current evidence. Recent evidence shows that naloxone begins to have clinical effect within 2–3 minutes regardless of route.

CLINICAL CONSIDERATIONS — REVISED

Initial aggressive management of the airway is paramount and the priority in patient care.

If no response to 3 doses, consider patching for further orders.

If the patient does not respond to airway management and the administration of naloxone, glucometry should be considered.

Impact to Clinical Practice
Airway management should always be the priority when managing the suspected opioid toxicity patient. If the patient does not respond to airway management and naloxone administration, consider other potential causes for their presentation including glucometry.

ACP – TREATMENT — REVISED

Addition of intraosseous route in the setting of the pre-arrest patient.

2. Analgesia Medical Directive

Changes to the Analgesia Medical Directive were made to allow for paramedic clinical judgement when managing pain in the pre-hospital setting.

CONDITIONS — REMOVED

Ketorolac is restricted to those who are unable to tolerate oral medications.

Impact to Clinical Practice
To allow for paramedics to use more clinical judgement in selecting the appropriate medication based on clinical presentation.

CLINICAL CONSIDERATIONS — NEW

Patients presenting with suspected renal colic may receive either ketorolac or ibuprofen.

Impact to Clinical Practice
To allow for consideration of ketorolac or ibuprofen for suspected renal colic.

ACP – CONDITIONS — REMOVED

Morphine and fentaNYL – severe pain

Impact to Clinical Practice
To allow for paramedics to use more clinical judgement in selecting the appropriate medication based on clinical presentation.

ACP – CONTRAINDICATIONS — NEW

Morphine and fentaNYL – Active labour

Impact to Clinical Practice
To restrict administration during active labour.

ACP – TREATMENT — REMOVED

Morphine and fentaNYL – removed max number of doses.

Impact to Clinical Practice
To allow for intravenous dosing utilizing aliquots to effectively titrate analgesia.

ACP – TREATMENT — NEW

FentaNYL – change to a max cumulative dose of 200 mcg.

Impact to Clinical Practice
For consistency of maximum dosing and tracking purposes.

3. Hypoglycemia Medical Directive

Changes to the Hypoglycemia Medical Directive allow for titration of Dextrose administration for improved patient outcomes.

TREATMENT — **NEW**

Suspected hypoglycemia

Impact to Clinical Practice
Allows the paramedic to use clinical judgement.

TREATMENT — **NEW**

Max single dose of D10W is now 25 g in 250 ml

Impact on Clinical Practice
Max dose of D10W now aligns with max dose of D50W.

TREATMENT — **NEW**

Titrate dextrose to a level of awareness where the patient can safely consume complex carbohydrates.

Impact on Clinical Practice
Allows for appropriate administration of dextrose without over treatment of the hypoglycemic patient.

ACP – TREATMENT — **NEW**

Dosing table has been simplified with only 2 age parameters. Review the dosing table within the medical directive for the details.

Impact to Clinical Practice
Simplified dosing table.

ACP – TREATMENT — **REMOVED**

Removal of D25W

Impact on Clinical Practice
Simplifies the treatment options for hypoglycemic pediatric patients.

4. Cardiogenic Shock Medical Directive

There were no changes to the PCP Cardiogenic Shock (Auxiliary) Medical Directive. Changes were made to the contraindications in the ACP Cardiogenic Shock (Core) Medical Directive to be consistent with other medical directives.

ACP – CONTRAINDICATIONS — **REVISED**

DOPamine – Mechanical shock

Impact on Clinical Practice
There is no impact to clinical practice as this was simply a wording change for consistency.

5. Cardiac Ischemia Medical Directive

Changes to the Cardiac Ischemia Medical Directive are to allow for the best practice in defibrillation pad placement upon identification of STEMI.

CLINICAL CONSIDERATIONS — NEW

Apply defibrillation pads when a STEMI is identified

Impact to Clinical Practice
Now included as part of the standard.

CLINICAL CONSIDERATIONS — NEW

The goal for time to 12-lead ECG from first medical contact is < 10 minutes where possible.

Impact to Clinical Practice
Whenever feasible, obtaining a 12-lead ECG within 10 minutes of patient contact is best practice.

ACP – CONDITIONS — REVISED

Removed the numerical pain scale from severe pain for morphine.

Impact to Clinical Practice
To allow for paramedics to use more clinical judgement in selecting the appropriate medication based on clinical presentation.

6. Return of Spontaneous Circulation (ROSC) Medical Directive

Changes to the Return of Spontaneous Circulation Medical Directive were for the purpose of clarification.

CONTRAINDICATIONS — REMOVED

0.9% NaCl Fluid Bolus – removed SBP greater than or equal to 90 mmHg.

ACP – CLINICAL CONSIDERATIONS — NEW

Adult IO administration of a NaCl bolus requires the ACP to be authorized.

Impact to Clinical Practice
For clarification that an ACP cannot take an order from a BHP for an adult IO if not authorized by their Regional Base Hospital program.

ACP – CLINICAL CONSIDERATIONS — NEW

Notify receiving hospital staff if the DOPamine drip goes interstitial.

Impact to Clinical Practice
DOPamine can cause tissue necrosis if it goes interstitial. This can be mitigated by a phentolamine injection at the hospital into affected tissue.

7. Hyperkalemia Medical Directive

Changes to the Hyperkalemia Medical Directive allow for the timely critical intervention for patients presenting with hyperkalemia.

CONTRAINDICATION – CALCIUM GLUCONATE — REMOVED

Current Digoxin use

Impact on Clinical Practice
There are no longer any documented contra-indications to the administration of calcium gluconate when the patient meets the indications and conditions for the Hyperkalemia Medical Directive.

TREATMENT — REMOVED

Mandatory provincial patch point

Impact on Clinical Practice
To allow for critical treatment to be performed without delay.

TREATMENT – CALCIUM GLUCONATE — NEW

Dosing interval is reduced to 5 minutes between the first and second dose.

Max number of doses – *An additional 3rd dose may be administered after 30 minutes if the patient improved initially and symptoms meeting the indications recur.

Impact on Clinical Practice
Allows for time-appropriate medication administration if there is no effect from the first dose of calcium guconate.

The 3rd dose allows for further treatment if required.

CLINICAL CONSIDERATIONS — REMOVED

If appropriate, refer to the Symptomatic Bradycardia, Tachydysrhythmia or Cardiac Arrest Medical Directives for further management of these patients.

Sodium bicarbonate may not be an effective agent for hyperkalemia and, so should not routinely be administered.

Impact on Clinical Practice
The clinical considerations that have been removed can be found within the Companion Document.

CLINICAL CONSIDERATIONS — REVISED

The action of calcium gluconate is often visible through the normalization of observed ECG changes of hyperkalemia. If ECG changes do not improve, or if they worsen, additional doses may be required. The duration of action is 20–60 minutes: consider repeat dosing if ECG changes recur during extended transport times.

Impact to Clinical Practice
Information related to the action and duration of action of calcium gluconate, in the context of hyperkalemia and ECG changes, has been added for the paramedic's reference.

8. Orotracheal Medical Directive

The change to the Orotracheal Intubation Medical Directive was to provide clearer direction for the use of topical Lidocaine.

TREATMENT — **REVISED**

Consider topical lidocaine spray (to the hypopharynx) when GCS is greater than or equal to 4.

Impact to Clinical Practice
Provides clearer direction for the use of topical lidocaine instead of simply "awake".

9. Seizure Medical Directive

Changes to the Seizure Medical Directive were to align care with the current recommendations for the priority treatment of seizure patients.

CONTRAINDICATIONS — **REMOVED**

Hypoglycemia

Impact on Clinical Practice
Allows paramedic to use more clinical judgement to determine the most likely etiology of the seizure and provide appropriate therapy.

TREATMENT — **NEW**

Addition of intraosseous (IO) route for midazolam administration.

Impact on Clinical Practice
Aligns with other medical directives for medications that can be administered via the IO route in the setting of pre-arrest.

CLINICAL CONSIDERATION — **NEW**

Do not delay midazolam administration for blood glucometry in cases where hypoglycemia is not suspected to be the causative agent.

Blood glucose should be routinely checked in patients who do not respond to midazolam or have not returned to their baseline LOA after a seizure.

Impact on Clinical Practice
Directs the priority to benzodiazepine therapy for non-hypoglycemic causes of seizure.

10. Cricothyrotomy Medical Directive

The change to the Cricothyrotomy Medical Directive allows for the treatment to be performed without delay.

TREATMENT — REMOVED

Mandatory provincial patch point

Impact on Clinical Practice
To allow for potential lifesaving treatment to be performed without delay.

11. Symptomatic Bradycardia Medical Directive

The changes made to the Symptomatic Bradycardia Medical Directive should allow for the timely critical intervention and align with the current American Heart Association (AHA) guidelines.

CONTRAINDICATIONS — REMOVED

DOPamine
- Tachydysrhythmias, excluding sinus tachycardia
- Hypovolemia

Atropine and Transcutaneous pacing
- Hemodynamic stability

Impact on Clinical Practice
Removal of non-applicable contraindications.

CONTRAINDICATIONS — REVISED

Dopamine – Mechanical shock

Impact on Clinical Practice
There is no impact to clinical practice as this was simply a wording change for consistency.

TREATMENT — REMOVED

Mandatory provincial patch point

Impact on Clinical Practice
To allow for transcutaneous pacing to be initiated without delay.

TREATMENT — REVISED

Atropine dose has changed to 1 mg IV.

Impact on Clinical Practice
Aligns with the current AHA guidelines.

CLINICAL CONSIDERATIONS — REMOVED

All previous clinical considerations have been removed.

Impact to Clinical Practice
The clinical considerations that have been removed can be found within the Companion Document.

CLINICAL CONSIDERATIONS — NEW

Transcutaneous pacing (TCP) should not be delayed for placement of an IV.

A fluid bolus should be considered with all symptomatic bradycardia patients if indicated.

Impact to Clinical Practice
If TCP is the appropriate treatment it should be prioritized over the initiation of IV access.

Patients who meet this directive are hypotensive, but not necessarily hypovolemic and a fluid bolus should be considered.