London Health Sciences Centre

Southwest Centre for Prehospital Medicine

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Medical Directives, Guidelines & Policies

Comprehensive Medical Directives

Medical Director Information

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Note from Medical Directors

As a part of the London Health Sciences Centre (LHSC) Southwest Centre for Prehospital Medicine (SCPM), I am proud to serve as the Medical Director for your Fire Service. Over time, prehospital care evolves as new evidence is produced that impacts patient outcomes. As such, the directives contained within will evolve over time to ensure that firefighters are providing the most up to date and evidence-based care that has a positive impact on patient morbidity and mortality. The SCPM strives to provide optimal evidenced-based medical care for patients before paramedic arrival.

Authorization for Delegation of Medical Directives

The medical directives contained within this handbook have been approved for use for firefighters certified by Dr. Matthew Davis.

Delegation of the medical directives is under the direction of Dr. Matthew Davis.

Dated: January 23, 2025

Authorized By:

Dr. Matthew Davis

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Medical Direction and Oversight

Controlled Acts

Controlled acts are specified in the *Regulated Health Professions Act, 1991 (RHPA)* as acts which may only be performed by authorized regulated health professionals. Of the 14 controlled acts, physicians are authorized to perform 13 and may, in appropriate circumstances, delegate the performance of those acts to other individuals who may or may not be members of a regulated health profession.

Delegation

Delegation is a mechanism that allows a physician who is authorized to perform a controlled act to confer that authority to another person (whether regulated or unregulated) who is not independently authorized to perform the act. AED use is a controlled medical act. The firefighter provides care according to medical directives, under the authority of their Medical Directors. The firefighter may not accept delegation from another on-scene physician, nor should the firefighter delegate these acts to another provider or citizen.

Medical Directive

Medical directives are written orders by physicians to other health care providers that pertain to *any patient* who meets the criteria set out in the medical directive. When the directive calls for acts that will require delegation, it provides the authority to carry out the treatments, procedures, or other interventions that are specified in the directive, provided that certain conditions and circumstances exist.

Use of Medical Directives/Guidelines

These medical directives and guidelines are not intended to cover all situations and are not a substitute for good judgment. It is the firefighter's responsibility to assess the situation and use their knowledge and skills to benefit the patient while remaining within their scope of practice.

PPE

Firefighters will protect themselves and others from illness or injury while providing patient care. The firefighter will also assess the risk of communicable diseases by asking about signs of illness and travel history, observe the presence of, and attempt to avoid unnecessary contact with body fluids, and utilize appropriate personal protective equipment (PPE) to limit personal exposure and disease transmission.

Age and Corresponding Vital Signs

The general age cut off between adults and pediatrics is 18 years. There is a wide range of "normal" for vital signs in adults and especially pediatrics. As much as possible, ages for pediatrics and cut off points for vital signs have been kept consistent throughout the Medical Directives. However, clinical research and expert opinion have resulted in a number of exceptions, which in each case has been deliberately chosen and is clearly noted in each Medical Directive. There is a deliberate gap in the definition of normotension and hypotension in both adults and pediatrics.

Adults (18 ≥ years old)

Normotension: SBP ≥ 100 mmHg (SBP = Systolic Blood Pressure)

Hypotension: SBP < 90 mmHg

Bradycardia: HR < 50 BPM

Tachycardia: HR ≥ 100 BPM RR

Bradypnea: RR ≤ 10 breaths/min

Tachypnea: RR ≥ 28 breaths/min

Pediatrics (< 18 years old)

Age	Respiratory Rate	Heart Rate
0 – 3 months	30 – 60	90 – 180
3 – 6 months	30 – 60	80 – 160
6 – 12 months	25 – 45	80 – 140
1 – 3 years	20 – 30	75 – 130
6 years	16 – 24	70 – 110
10 years	14 – 20	60 – 90

Normotension: SBP ≥ 90 mmHg + (2 x age in years)*

*Once calculation equals 100 mmHg this would be used as the threshold for normotension

Hypotension: SBP < 70 mmHg + (2 x age in years)*

*Once calculation equals 90 mmHg this would be used as the threshold for normotension

Weight (kg): (age x 2) + 10

Newborn Definition

A newborn is a patient who is less than 24 hours of life. The newborn cardiac arrest medical directive applies to patients less than 24 hours of life only.

Level of Awareness (LOA)

Patient can be described as Awake (normal level of awareness), Altered (confused, not normal level of awareness), or Unconscious (non-responsive to verbal, tactile stimuli).

Preamble

Southwest Centre for Prehospital Medicine

Cardiac/Circulation

Medical Cardiac Arrest Medical Directive

Re-Arrest Medical Directive

Trauma Cardiac Arrest Medical Directive

Foreign Body Airway Cardiac Arrest Medical Directive

Newborn Resuscitation Medical Directive

Transfer from an AED-Equipped Public Lay Responder Therapy Medical Directive

Medical Cardiac Arrest Medical Directive

Indications

Patient presenting in cardiac arrest (vital signs absent)

Conditions

Vital Signs Absent/Pulseless

Age > 24 hours

Contraindications

Valid DNR form

Obvious death

Treatment

1. Establish level of alertness. Open the airway and simultaneously check for breathing and pulse. If there is no pulse, immediately announce the patient is VSA, initiate CPR, apply defib pads and turn on AED There may be abnormal breathing for a few minutes after the heart stops and this should not be confused with signs of life. If the patient is found to have a pulse, the AED may be turned off.

2. Apply defibrillation pads as quickly as possible while chest compressions are continuing. It is vital that good pad adherence is achieved. This may require prepping the patient's chest via shaving, and towels. Chest compressions may be interrupted transiently during this process.

3. The AED will announce "Don't touch patient. Analyzing."

4. If the AED announces "Press flashing shock button" prepare for shock delivery. Ensure no personnel are touching the patient when the shock is being delivered. Deliver the shock safely and resume CPR immediately. No pulse check is needed.

5. If the AED announces "No shock advised", resume CPR immediately. No pulse check is needed.

6. While one firefighter is providing chest compressions, another will set up oxygen and airway equipment. As soon as feasible, apply the bag-valve mask with a one- handed or two-handed seal if necessary. Ventilate at a ratio of 2 breaths to every 30 compressions (ventilations remain at 2 breaths for every 15 compressions for infants or children).

7. Rescuers will switch roles every 2 minutes when the AED advises “Don’t touch patient. Analyzing.” The rescuer doing chest compressions moves to the airway position and vice versa.

8. Continue CPR, stopping only to analyze and shock if prompted, or when paramedics assume responsibility for the patient.

9. CPR may be stopped if there are obvious signs of life (normal breathing or moving). Presence of a pulse must be confirmed at this point. Note that VSA patients may continue to breathe abnormally (called ‘agonal respirations’). In a patient with agonal respirations, a pulse must be checked. Resume CPR if a patient has agonal respirations but no pulse.

10. If there is a return of pulse, turn off the AED but leave the pads on the patient. Recheck the pulse every 60 seconds because there is a high risk of re-arrest. Obtain a set of vital signs as soon as possible after a return of spontaneous circulation (ROSC).

Clinical Considerations

In pediatric patients, if the pulse is less than 60 with signs of poor perfusion (altered mental status, mottling, cyanosis) despite support of adequate oxygenation and ventilation, start chest compressions.

For hypothermic cardiac arrest, If possible, remove or protect the patient from exposure to the elements. Immediately initiate measures to reduce heat loss. Cut off all wet clothing and cover the patient as quickly as possible with blankets.

For hypothermic cardiac arrests, follow the **Medical Cardiac Arrest Medical Directive**. There is no longer a need for a 30-45 second pulse check as per the 2020 AHA guidelines.

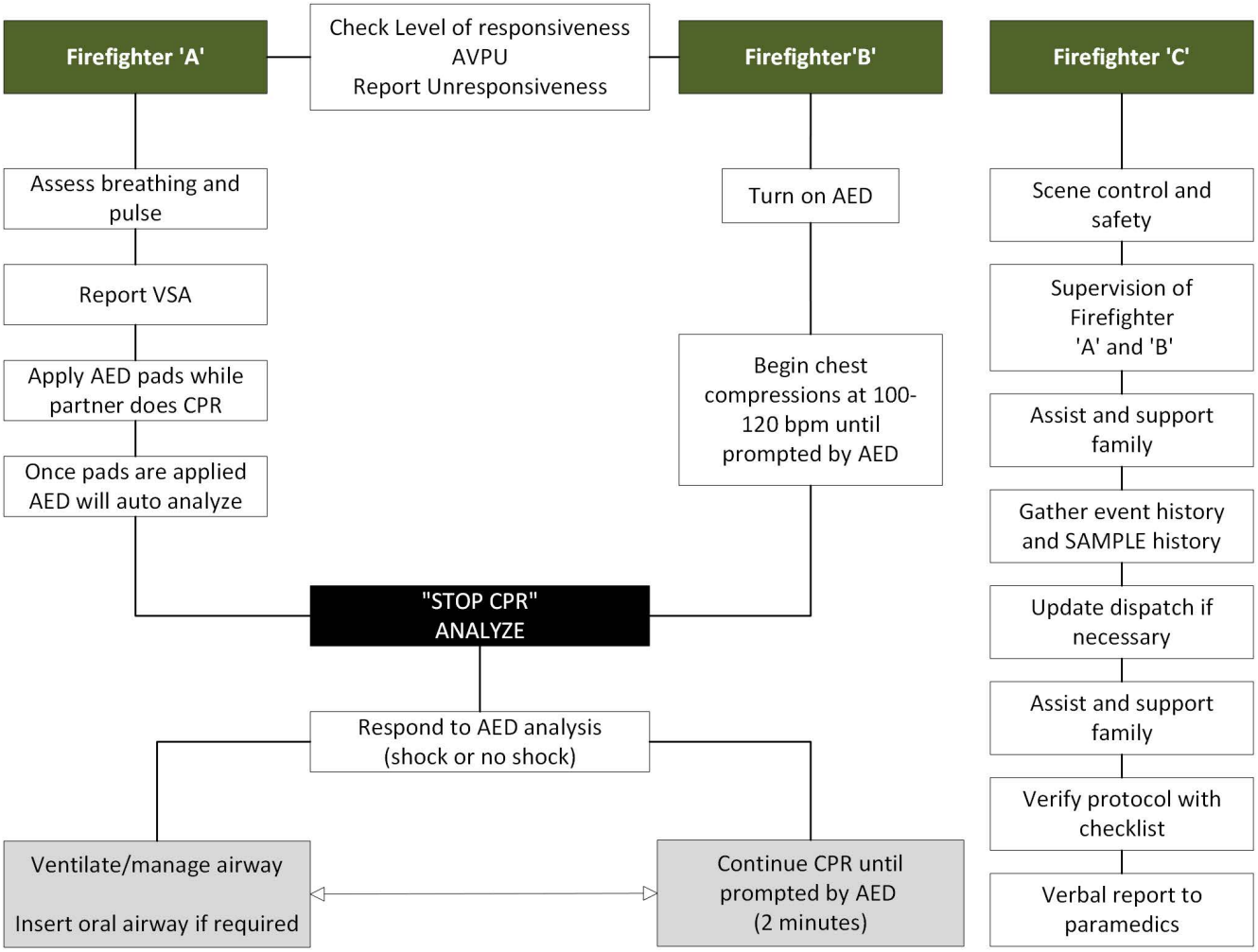
CREW RESOURCE MANAGEMENT (CRM/PIT CREW)

Integrated teams of highly trained rescuers shall use a choreographed approach that accomplishes multiple steps and assessments simultaneously rather the than sequential manner used by individual rescuers. The Company Officer will utilize the “Cardiac Arrest Checklist” to ensure protocol compliance.

CARDIAC ARREST CHECKLIST

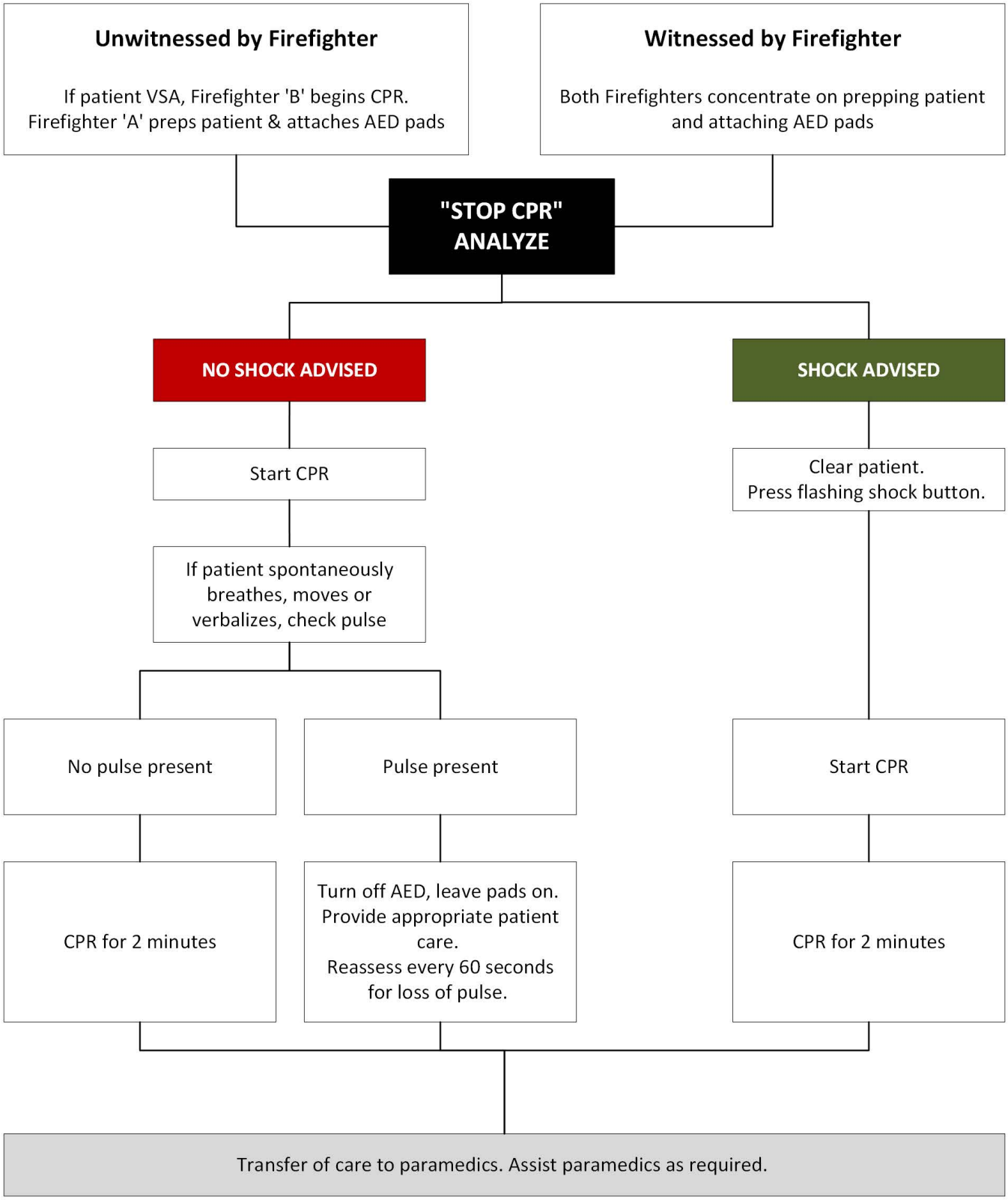
- ❑ Scene Safety/Appropriate PPE
- ❑ Confirm Patient in arrest/Turn on AED
- ❑ CPR FF initiates Chest Compressions Only CPR at appropriate rate
- ❑ Patient is Adult/Child (Correct Pads selected)
- ❑ Appropriate CPR Ratio (minimize Interruptions), rate, and recoil
- ❑ O_2 cylinder attached to BVM
- ❑ A/W required (Oral)
- ❑ Switch Compressor during each Analysis
- ❑ ROSC (Return of Pulse)
    - Support Ventilations
    - Obtain Vital Signs/Monitor Patient

CARDIAC ARREST FLOWSHEET



NOTE: Switch Firefighter 'A' and Firefighter 'B' at each analyze

AED FLOWSHEET



Medical Cardiac Arrest

Re-Arrest Medical Directive

Indications

Re-arrest after a non-traumatic cardiac arrest ROSC

Conditions

Vital Signs Absent/Pulseless

Age > 24 hours

Re-arrest occurs after implementation of ***Medical Cardiac Arrest Directive***

Contraindications

Cardiac arrest as a result of trauma

Treatment

1. Provide CPR until AED turned on.
2. As the defibrillation pads will still be on the patient, the AED will auto analyze when turned on again.
3. Once analysis is complete deliver shock if indicated.
4. Once the shock is delivered, continue with your ***Medical Cardiac Arrest Directive***.

Clinical Considerations

Ensure your update to paramedics includes the number of shocks administered in the "new" arrest, not total shocks given.

Trauma Cardiac Arrest Medical Directive

Indications

Suspected of having a traumatic cardiac arrest, defined as obvious severe injuries to the head or torso, or a mechanism of injury likely to cause severe injury (fall from a significant height, motor vehicle collisions, etc.).

Conditions

Vital Signs Absent/Pulseless

Age > 24 hours

Blunt or penetrating trauma

Contraindications

Valid DNR form

Obvious death

Treatment

1. Use the ***Medical Cardiac Arrest Directive Treatment*** At any point in the treatment, if “No shock advised” voice prompt occurs, turn off the defibrillator after receiving the “Start CPR” voice prompt. Continue CPR and ventilations once a “No shock advised” voice prompt occurs and do not do any further analysis.

2. If possible, protect the patient from exposure to the elements. Cover the patient as quickly as possible with blankets.

3. Always maintain C-spine precautions and avoid unnecessary movement of the patient.

Clinical Considerations

NA

Foreign Body Airway Cardiac Arrest Medical Directive

Indications

Cardiac arrest secondary to presumed airway obstruction from a foreign body

Conditions

Vital Signs Absent/Pulseless Patient

> 24 hours of age

Contraindications

Valid DNR form

Obvious death

Treatment

1. Follow the ***Medical Cardiac Arrest Directive.***
2. At any time in your care prior to ventilating the patient, ensure you visualize and clear the airway.
3. If a foreign body is visualized, do not insert any airway adjunct until you are able to clear the airway and successfully ventilate the patient. If no foreign body is visualized, an airway adjunct may be used if unable to adequately ventilate with BVM alone.
4. If you are unable to clear the airway, continue with your directive and update paramedics.

Clinical Considerations

NA

Newborn Resuscitation Medical Directive

Indications

Newborns less than 24 hours of age and in need of resuscitation

Conditions

Age < 24 hours

Contraindications

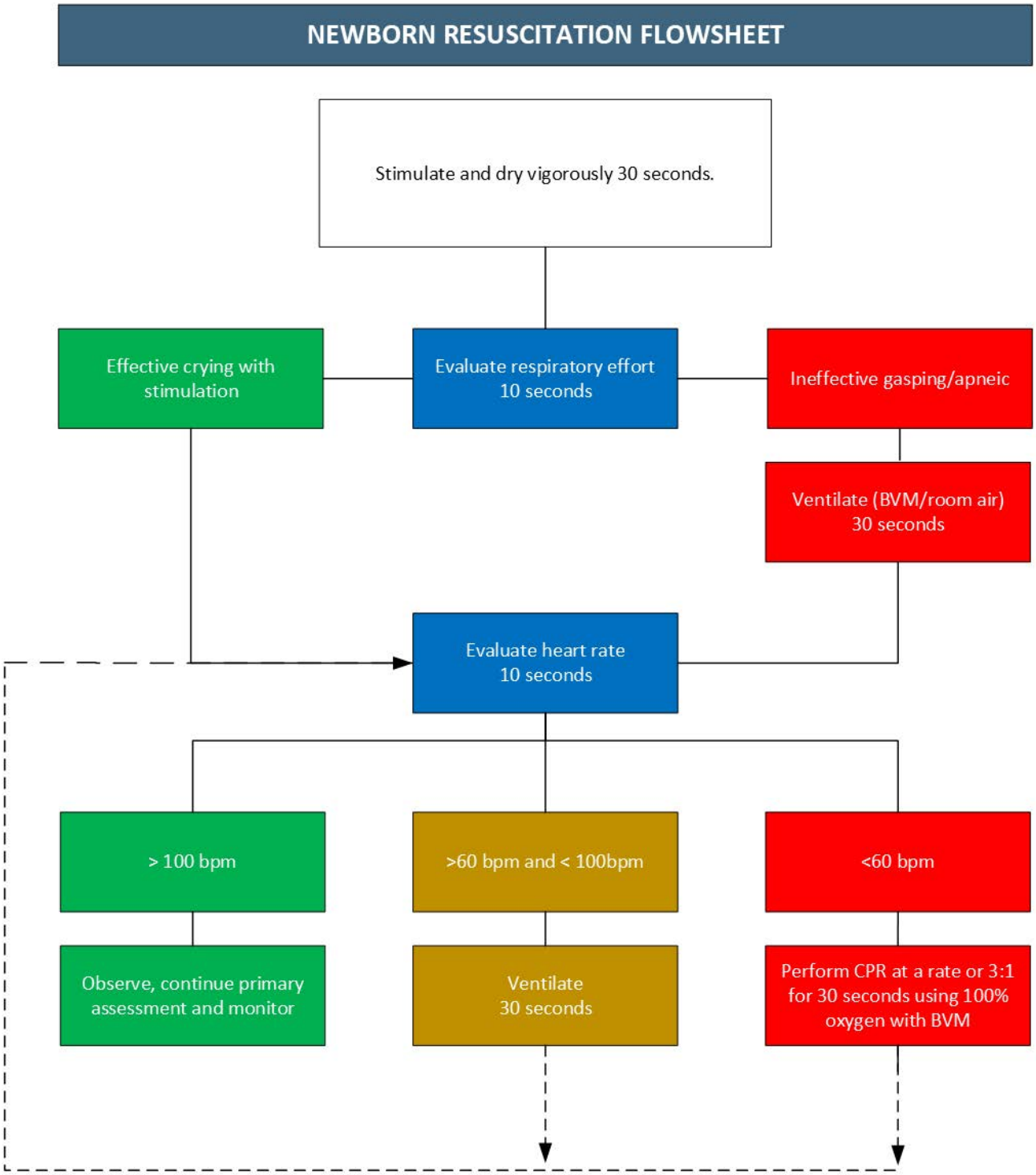
Obvious death

Treatment

1. Assess newborn for the presence of meconium, breathing, crying, muscle tone, and colour.
2. If resuscitation required, clamp umbilical cord with 2 clamps and cut umbilical cord between the clamps.
3. Provide warmth, position, and clear the airway.
4. Dry, stimulate and reposition the airway.
5. Evaluate respiration, heart rate and colour.
6. Provide positive pressure ventilation if newborn is apneic or HR < 100.
7. If HR < 60 despite adequate oxygenation and ventilation, continue to provide positive pressure ventilation (with 100% FiO2) and administer chest compressions at a ratio of 3:1 (compression/ventilation).

Clinical Considerations

Pulse oximetry should not be utilized on a newborn as perfusion in the extremities for the first few minutes will be very poor.


NEWBORN RESUSCITATION FLOWSHEET
Stimulate and dry vigorously 30 seconds.
Effective crying with stimulation
Evaluate respiratory effort 10 seconds
Ineffective gasping/apneic
Ventilate (BVM/room air) 30 seconds
Evaluate heart rate 10 seconds
> 100 bpm
>60 bpm and < 100bpm
<60 bpm
Observe, continue primary assessment and monitor
Ventilate 30 seconds
Perform CPR at a rate or 3:1 for 30 seconds using 100% oxygen with BVM

Cardiac Arrest Special Consideration

Compression Only CPR

Compression-only CPR means performing only uninterrupted chest compressions at a rate of 100 to 120 compressions per minute without administering ventilations. Circulating the blood without ventilations uses the blood's own store of oxygen which can last several minutes. It is performed only until the defibrillation pads have been attached and all airway equipment is readied. Following this, CPR with ventilations will be used.

High Quality CPR and Defibrillation

AEDs can provide real-time CPR feedback to help deliver at least two inch chest compressions, at a rate of 100 compressions per minute, with full chest recoil between compressions.

There are several key elements to providing high quality CPR:

- Minimize delays. Rapidly move the patient to a flat/firm area, start CPR, and apply the AED.
- Minimize interruptions in CPR. Every interruption in CPR decreases blood flow to vital organs.
- If there is a "No shock advised", resume CPR without a pulse check. This increases the amount of time spent providing blood flow to the brain and vital organs.
- Provide deep compressions, allowing full chest recoil so that blood is pumped out of the chest with each compression, and flows back with each up-stroke.
- Follow the CPR feedback prompts. Listen for the "Good compressions" prompt. Match the compressions to the rate of the metronome beeps and watch the depth gauge on the AED to provide at least two-inch chest compressions.
- Follow the voice prompts. Stop CPR only when prompted by the defibrillator, and resume immediately when prompted to do so.

Cardiac Arrest Witnessed By Firefighters

The priority is to immediately apply the AED and deliver a shock as soon as possible if prompted. Turn on the AED when the patient arrests. Start CPR if it takes more than a few seconds to apply the AED electrodes.

Transfer of Care from a Public Lay Responder Using an AED to a Firefighter

Assess the patient's level of awareness and pulse.

- If the patient has ***no pulse***, follow the ***Transfer of Care from an AED Equipped Public Lay Responder*** and the ***Medical Cardiac Arrest Medical Directives.***
- If the patient has ***a pulse and has received shocks***, apply the Fire Service AED but do not turn it on. Be prepared in the event of a re-arrest.
- If patient has ***a pulse and has received no shocks*** they may not have ever been VSA.

Provide medical care appropriate for the patient's condition.

Pacemaker

If possible, avoid putting the defibrillator pads over or near the pacemaker as the AED may damage the implanted pacemaker.

Automatic Implantable Defibrillators

Implantable defibrillators work in a similar manner to an AED but use much lower, safer voltages. A patient may feel the painful shocks internally but it is safe for firefighters to touch a patient with an automatic implantable defibrillator, even if it is firing. If possible, avoid putting the defibrillator pads over or near the implanted defibrillator as the AED may damage it.

Infant and Child Cardiac Arrests

The AED 3 may be used on children and infants of any age. Newborn (under 24 hours old) are treated according to protocols outlined in the ***Newborn Resuscitation Directive*** (no AED needed for under 24 hours old).

If a child or infant suffers a cardiac arrest, start compression-only CPR at 100-120 compressions per minute and apply the AED. When ready, start ventilations at a compression to ventilation ratio of 15:2. Use only enough air for ventilation to achieve visible chest rise.

For children over one year, use the heel of one hand for chest compressions. Compress the chest so that it is depressed one-third to one-half its original depth. For infants (< 1 year), use two fingers and compress the chest so that it is depressed one-third to one-half its original depth.

Postpartum Cardiac Arrest

In a situation whereby a cardiac arrest occurs in a postpartum patient and the neonate is still attached to the patient via the umbilical cord, a FF may place 2 clamps on the umbilical cord and cut between the clamps. This can be done at the discretion of the FF in order to provide cardiac arrest care to the postpartum patient.

Conductive Surfaces

It is safe to proceed with cardiac arrest protocols on ice, snow, wet grass or concrete/ pavement, etc. However, if a patient is lying on metal or in a puddle, move the patient to a suitable surface and begin cardiac arrest protocols.

CPR Pearls

	Patient	Patient Definition	CPR	Patient Reassessment
HR < 60 with signs of poor perfusion = CPR	Newborn	< 24 hours old	3:1	q 30 seconds
	Infant/Child	≥ 24 hours old to no signs of puberty	1 rescuer 30:2	q 2 minutes
			2 rescuers 15:2	
	Adult	Puberty and beyond	30:2	q 2 minutes

Puberty: Breast development in females & the presence of axillary hairs in males.

Once 100% O2 via PPV has been initiated *(with HR < 60 & initiation of CPR)* ***continue to deliver 100% O2 until monitored HR is ≥ 100; we no longer discontinue 100% O2 once HR > 60. Once HR ≥ 100 supportive care only.***

Transfer of Care from an AED-Equipped Public Lay Responder Therapy Medical Directive

Indications

Potential cardiac arrest patient where an AED has been applied by a lay responder

Conditions

Potential cardiac arrest

Contraindications

N/A

Treatment

1. Assume care of the patient immediately. Do not operate any AED other than the Fire Service supplied AED, except to turn off and remove a lay responder AED.

2. Identify yourselves as a Firefighter to the lay responder and determine how many shocks (if any) have been delivered.

3. When taking over care, check responsiveness and check for a carotid pulse. Simultaneously, assist the lay responder to turn off and remove their AED and defibrillation pads.

4. If no carotid pulse is present, follow Medical Cardiac Arrest Directive.

5. If a carotid pulse is found, and the patient has previously been shocked by the lay responder, apply your AED. These patients are very likely to arrest again. Support ventilation, monitor the patient closely for chest rise, and perform frequent carotid pulse checks. Obtain a set of vital signs. If the patient re-arrests, immediately turn on the Fire Services' AED and push the "ANALYZE" button, and begin chest compressions. Follow the appropriate medical cardiac arrest directive.

6. If a carotid pulse is found, and the lay responder has delivered no shocks, do not assume the patient was VSA. Do not apply your AED. Support ventilation if necessary and perform frequent carotid pulse checks and assess vital signs. Be prepared to initiate the cardiac arrest medical directives if the patient loses their carotid pulse.

7. Obtain history from the lay responder. Use the lay responder if necessary in other aspects of scene management (e.g. translation).

8. Instances may occur where an advanced-trained lay responder (such as an off duty paramedic, nurse, or health care worker) is providing advanced care beyond the firefighters' scope of practice. In these rare cases, the firefighter should offer assistance and assume a supportive role.

Clinical Considerations

NA

Southwest Centre for Prehospital Medicine

Airway/Breathing

Anaphylaxis Assist Medical Directive

Oxygen Therapy Medical Directive

Carbon Monoxide Toxicity Medical Directive

Suspected Opioid Toxicity Medical Directive

Anaphylaxis Medical Directive

Indications

Exposure to a potential allergen

AND

Confirmed history of anaphylaxis

AND

Has been prescribed an epinephrine auto-injector previously

AND

Has at least two organ systems affected:

- Skin – hives, edema
- Cardiovascular – hypotension (systolic BP < 90)
- Respiratory – difficulty breathing, audible stridor/wheezing
- GI – vomiting, diarrhea

AND

Is incapable of self-administering their prescribed epinephrine auto-injector OR
Has no trained family member or caregiver available or willing to administer the prescribed epinephrine auto-injector

Conditions

First episode of an anaphylactic reaction

2 or more doses of epinephrine administered within 20 minutes prior to firefighter arrival

Contraindications

2 or more doses of epinephrine administered within 20 minutes prior to firefighter arrival

Treatment

1. Ensure a patent airway, provide oxygen as per ***Oxygen Therapy Medical Directive***, perform ventilatory assistance using a BVM if needed and document vital signs.

2. Administer epinephrine immediately into the lateral thigh using an epinephrine autoinjector. The dose will be 0.15 mg for patients < 30 kg. All patients >30 kg will receive epinephrine to the maximum dose of 0.3 mg.

3. If patient, family member or caregiver able and willing to administer epinephrine autoinjector, firefighter can provide epinephrine autoinjector for patient, family

member or caregiver to administer if deemed suitable to the clinical situation.

4. If NO significant improvement 5 minutes after administration of epinephrine autoinjector and paramedics are not on scene, administer a second dose. This second dose should be administered in the opposite thigh.

5. Firefighters will not administer more than 2 doses.

6. **Maximum number of doses of epinephrine autoinjector that a patient should receive is 2**. This includes any self-administered dose within 20 minutes of FF arrival.

7. Continue supportive management until paramedics arrive.

Clinical Considerations

NA

Anaphylaxis Assist Medical Directive

Indications

Exposure to a potential allergen

AND

Confirmed history of anaphylaxis

AND

Has been prescribed an epinephrine auto-injector previously

AND

Has at least two organ systems affected:

- Skin – hives, edema
- Cardiovascular – hypotension (systolic BP < 90)
- Respiratory – difficulty breathing, audible stridor/wheezing
- GI – vomiting, diarrhea

AND

Patient has their own epinephrine autoinjector available and is incapable of self-administering their prescribed epinephrine auto-injector OR
has no trained family member or caregiver available or willing to administer the prescribed and available epinephrine auto-injector

Conditions

First episode of an anaphylactic reaction

Patient must have their own epinephrine autoinjector available on scene

Contraindications

2 or more doses of epinephrine administered within 20 minutes prior to firefighter arrival

Treatment

1. Ensure a patent airway, provide oxygen as per ***Oxygen Therapy Medical Directive***, perform ventilatory assistance using a BVM if needed and document vital signs.

2. Administer epinephrine immediately into the lateral thigh using an epinephrine autoinjector. The dose will be 0.15 mg for patients < 30 kg. All patients ≥ 30 kg will receive epinephrine to the maximum dose of 0.3 mg.

3. If patient, family member or caregiver are able or willing to administer epinephrine autoinjector, the firefighter can support and coach them through administration.

4. If NO significant improvement 5 minutes after administration of epinephrine autoinjector and paramedics are not on scene, administer a second dose. This second dose should be administered in the opposite thigh.

5. Firefighters will not administer more than 2 doses.

6. **Maximum number of doses of epinephrine autoinjector that a patient should receive is 2**. This includes any self-administered dose within 20 minutes of FF arrival.

7. Continue supportive management until paramedics arrive.

Clinical Considerations

NA

Oxygen Therapy Medical Directive

Indications

Shortness of breath due to a medical or traumatic emergency

Conditions

SpO_2 < 92%

A patient with an $SpO_2 \geq 92\%$ plus one of the following:

- Confirmed or suspected exposure to carbon monoxide or cyanide
- Suspected airway burns or smoke inhalation
- Cardiac arrest
- Respiratory failure or respiratory arrest
- Airway Obstruction
- Previous diagnosis of sickle cell disease with a complaint of pain or dyspnea

Non-functioning oximeter, unable to obtain SpO_2

Contraindications

COPD patient with $SpO_2 \geq 88\%$

Treatment

1. Apply SpO_2 monitor.
2. Administer oxygen as required, titrating oxygen for SpO_2 of 92-96% (88-92% if history of COPD).
3. Continuously administer high concentration oxygen for patients who have:
   - Confirmed or suspected exposure to carbon monoxide or cyanide
   - Suspected airway burns or smoke inhalation
   - Cardiac arrest
   - Respiratory failure or respiratory arrest
   - Airway Obstruction
   - Previous diagnosis of sickle cell disease with a complaint of pain or dyspnea

Clinical Considerations

NA

Carbon Monoxide Toxicity Medical Directive

Indications

Suspected CO toxicity

Conditions

SpCO > 3%

Contraindications

Cardiac arrest

Treatment

1. If potential CO exposure or if CO toxicity suspected, measure SpCO level

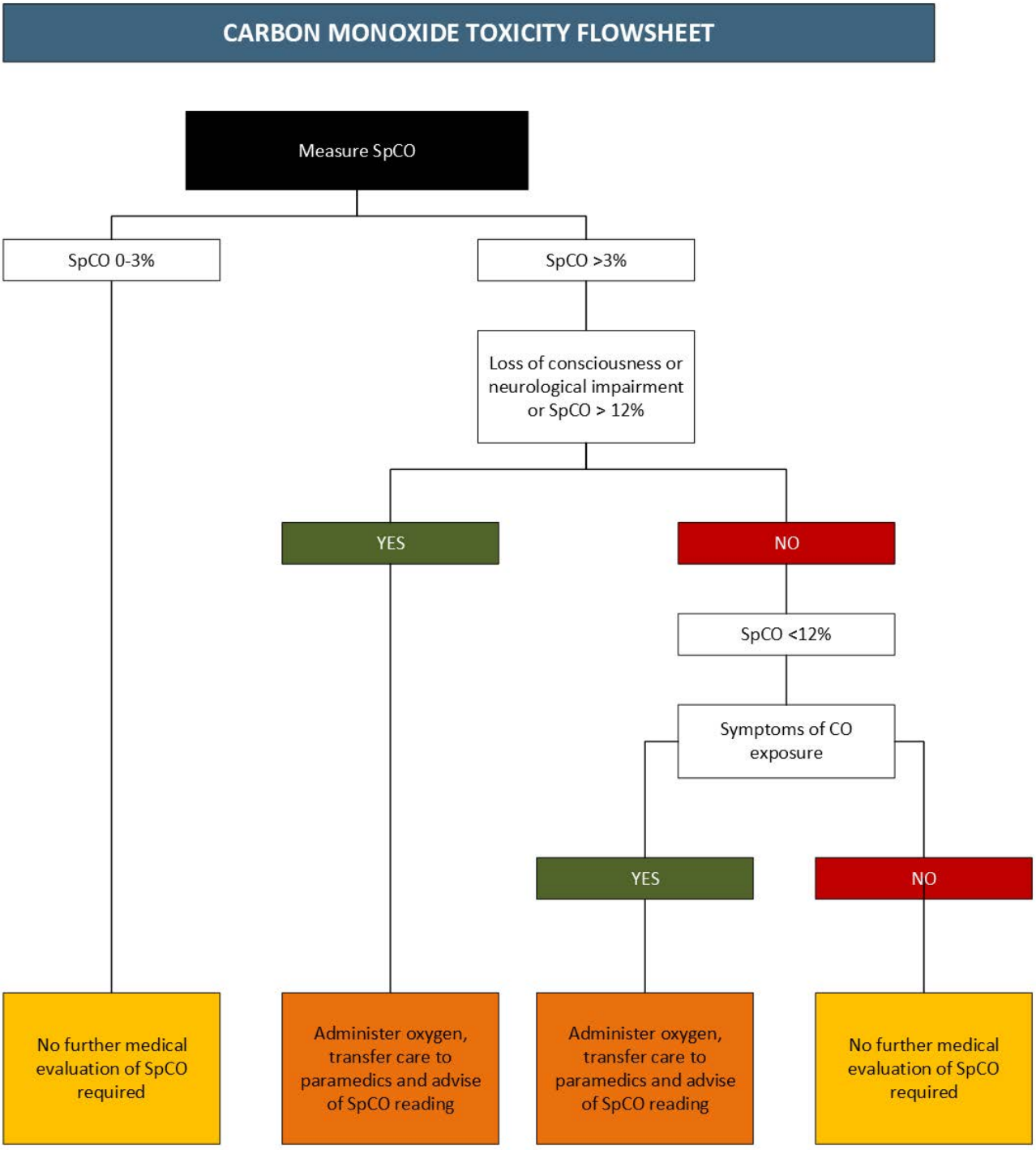
2. If SpCO level > 3% administer oxygen if:
   a. Decreased LOC or
   b. Neurological impairment or

3. If SpCO level > 12%, administer oxygen.

4. If SpCO level between 4-11% and patient has symptoms of CO exposure, administer oxygen.

Clinical Considerations

NA


CARBON MONOXIDE TOXICITY FLOWSHEET
Measure SpCO
SpCO 0-3%
SpCO >3%
Loss of consciousness or neurological impairment or SpCO > 12%
YES
NO
SpCO <12%
Symptoms of CO exposure
YES
NO
No further medical evaluation of SpCO required
Administer oxygen, transfer care to paramedics and advise of SpCO reading
Administer oxygen, transfer care to paramedics and advise of SpCO reading
No further medical evaluation of SpCO required

Suspected Opioid Toxicity Medical Directive

Indications

Suspected opioid toxicity
AND
Altered LOC
AND
Respiratory depression
AND
Inability to ventilate with BVM

Conditions

≥12 years of age

Has an altered LOC

RR < 10 breaths per minute

Has an SpO_2 < 92% or not reading

Inability to be adequately ventilated with BVM

Contraindications

Ability to ventilate the patient with an SpO_2 ≥ 92%

Treatment

1. Assess level of responsiveness, airway, breathing, carotid pulse, and SpO_2. If no carotid pulse, initiate CPR and follow cardiac arrest directive. **Naloxone is not to be administered during a cardiac arrest.**

2. Stimulate patient and determine if there is a change in responsiveness. Stimulation alone may reverse respiratory depression and restore adequate breathing. Apply O_2 if the level of responsiveness improves. Ensure airway patency if needed.

3. If after stimulation the respiratory rate is < 10 breaths per minute and SpO_2 < 92% or not reading, assist ventilations using a BVM and 100% oxygen at a rate of one breath every six seconds. **Adequate ventilation and oxygenation with a BVM and basic airway management is preferred over naloxone administration.**

4. If after stimulation and attempting to ventilate with airway adjuncts, you are unable to adequately ventilate the patient (as indicated by lack of chest rise

and SpO_2 remaining < 92%) or unable to maintain airway patency, prepare to administer naloxone.

5. Administer 4 mg naloxone intranasal into one nostril.

6. Document time of administration and which nostril was utilized.

7. Reassess patient's level of responsiveness, airway, breathing, carotid pulse and SpO_2.

8. If required, continue airway management and ventilation.

9. Continue to monitor the patient's vital signs and reassess frequently.

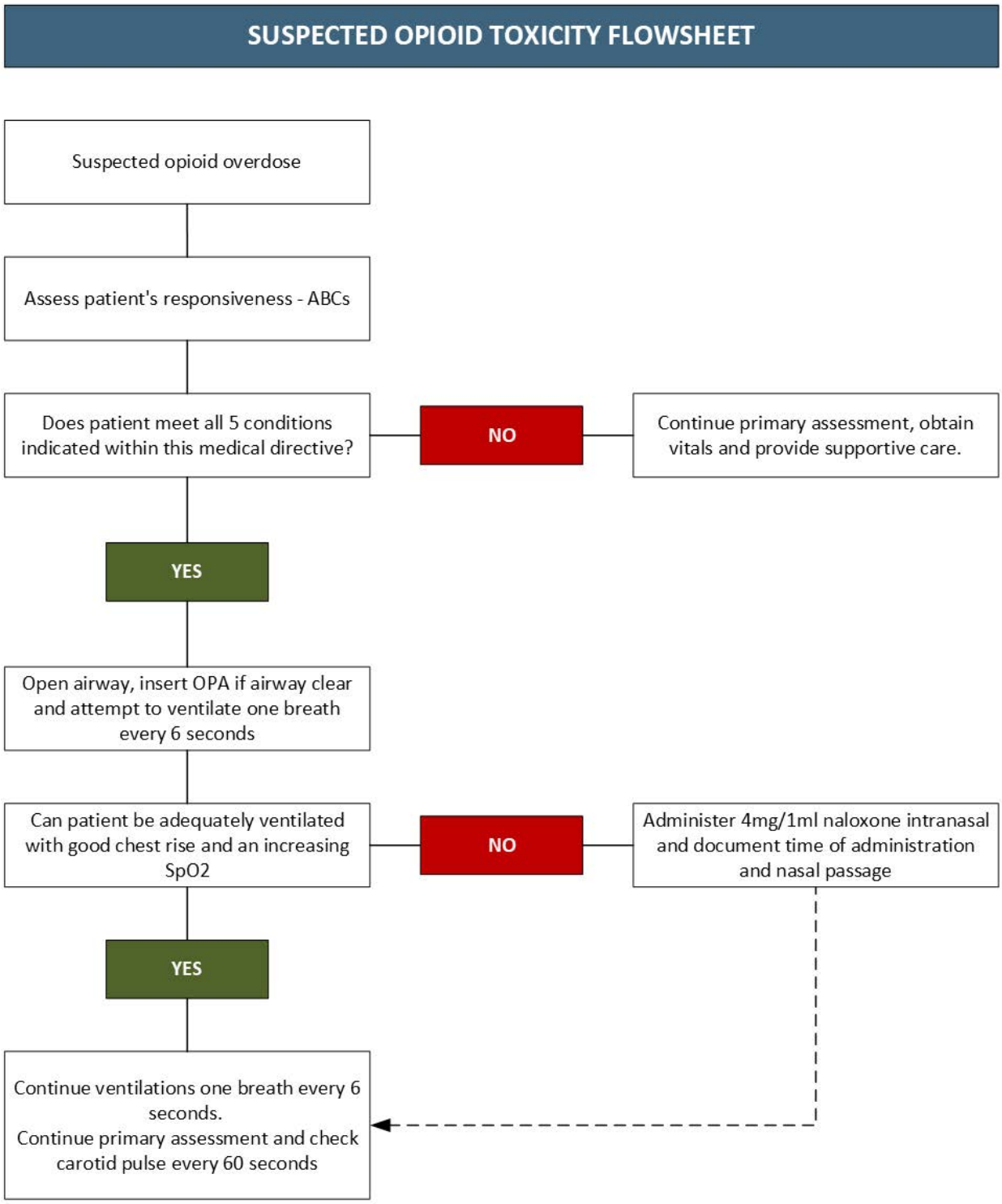
Transfer care to paramedics. Report the time medication administered, dose administered, nostril utilized, pre and post vital signs and the patient's response to treatment.

Clinical Considerations

Naloxone may take three to eight minutes to take effect. It is shorter acting than most narcotics, so patients are at risk of recurrence of opioid toxicity when it wears off.

In a mixed overdose situation, the use of naloxone may be ineffective or may unmask the effects of other drugs the patient may have used, which may lead to the patient experiencing seizures, severe high blood pressure or becoming extremely combative. Firefighters should protect themselves accordingly.

Gastrointestinal (GI) symptoms such as nausea, vomiting and movement of the patient's bowels sometimes occur following naloxone administration. The firefighter should be prepared to manage the patient's airway.


SUSPECTED OPIOID TOXICITY FLOWSHEET
Suspected opioid overdose
Assess patient's responsiveness - ABCs
Does patient meet all 5 conditions indicated within this medical directive?
NO
Continue primary assessment, obtain vitals and provide supportive care.
YES
Open airway, insert OPA if airway clear and attempt to ventilate one breath every 6 seconds
Can patient be adequately ventilated with good chest rise and an increasing SpO2
NO
Administer 4mg/1ml naloxone intranasal and document time of administration and nasal passage
YES
Continue ventilations one breath every 6 seconds.
Continue primary assessment and check carotid pulse every 60 seconds

References

References

Commonly Used Abbreviations

A	
ACP	advanced care paramedic
AED	automated external defibrillation
ALS	advanced life support
B	
BLS	basic life support
BPM	beats per minute
BVM	bag-valve-mask
C	
cm	centimetre
CPR	cardiopulmonary resuscitation
CTAS	Canadian triage and acuity scale
D	
DNR	do not resuscitate
E	
ED	emergency department
F	
FBAO	foreign body airway obstruction
G	
g	gram
GCS	Glasgow coma scale
H	
HR	heart rate
I	
IN	intranasal
J	
J	joule
K	
kg	kilogram

L

LOA	level of awareness
LOC	level of consciousness

M

max.	maximum
mg	milligram
mmHg	millimeters of mercury
ms	milliseconds

N

N/A	not applicable
NPA	nasopharyngeal airway

O

OPA	oropharyngeal airway

P

PCP	primary care paramedic
PEA	pulseless electrical activity
PPE	personal protective equipment
PRN	as needed

R

ROSC	return of spontaneous circulation
RR	respiratory rate

S

SBP	systolic blood pressure
SpCO	saturation of peripheral carboxyhemoglobin
SpO_2	saturation of peripheral oxygen

T

TOR	termination of resuscitation

V

VF	ventricular fibrillation
VSA	vital signs absent
VT	ventricular tachycardia

DNR Confirmation Form

Ontario Ministry of Health and Long-Term Care

Office of the Fire Marshal

Serial Number _____

Do Not Resuscitate Confirmation Form

To Direct the Practice of Paramedics and Firefighters after February 1, 2008

Confidential when completed

When this form is signed by a physician (M.D.), registered nurse (R.N.), registered nurse in the extended class (R.N. (EC)) or registered practical nurse (R.P.N.), a paramedic or firefighter **will not** initiate basic or advanced cardiopulmonary resuscitation (CPR) (see point #1) and **will** provide necessary comfort measures (see point #2) to the patient named below:

Patient's name – *please print clearly*	
Surname	Given Name

1. "**Do Not Resuscitate**" means that the paramedic (according to scope of practice) or firefighter (according to skill level) **will not** initiate basic or advanced cardiopulmonary resuscitation (CPR) such as:
   - Chest compression;
   - Defibrillation;
   - Artificial ventilation;
   - Insertion of an oropharyngeal or nasopharyngeal airway;
   - Endotracheal intubation;
   - Transcutaneous pacing;
   - Advanced resuscitation drugs such as, but not limited to, vasopressors, antiarrhythmic agents and opioid antagonists.
2. For the purposes of providing comfort (palliative) care, the paramedic (according to scope of practice) or firefighter (according to skill level) **will** provide interventions or therapies considered necessary to provide comfort or alleviate pain. These include but are not limited to the provision of oropharyngeal suctioning, oxygen, nitroglycerin, salbutamol, glucagon, epinephrine for anaphylaxis, morphine (or other opioid analgesic), ASA or benzodiazepines.

The signature below confirms with respect to the above-named patient, that the following condition (check one ☑) has been met and documented in the patient's health record.

☐ A current plan of treatment exists that reflects the patient's expressed wish when capable, or consent of the substitute decision-maker when the patient is incapable, that CPR not be included in the patient's plan of treatment.

☐ The physician's current opinion is that CPR will almost certainly not benefit the patient and is not part of the plan of treatment, and the physician has discussed this with the capable patient, or the substitute decision-maker when the patient is incapable.

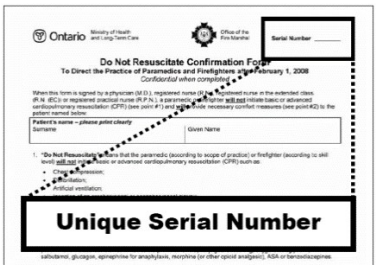
Check one ☑ of the following:

☐ M.D. ☐ R.N. ☐ R.N. (EC) ☐ R.P.N.

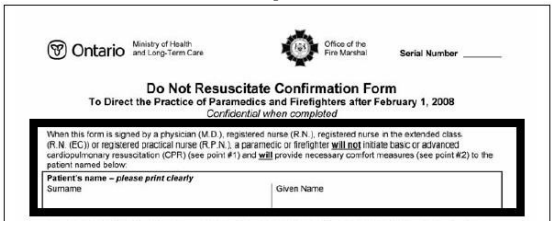
Print name in full	
Surname	Given Name
Signature	Date (yyyy/mm/dd)

- Each form has a unique serial number.
- Use of photocopies is permitted only after this form has been fully completed.

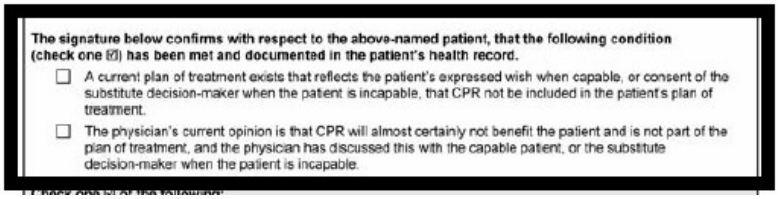
The following 4 areas must be completed to validate the DNRC Form:



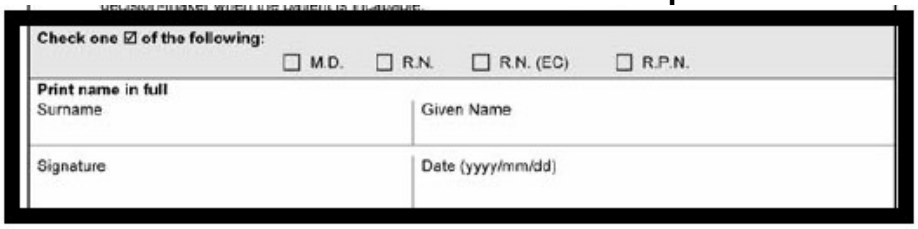
1. Must have Unique Serial Number



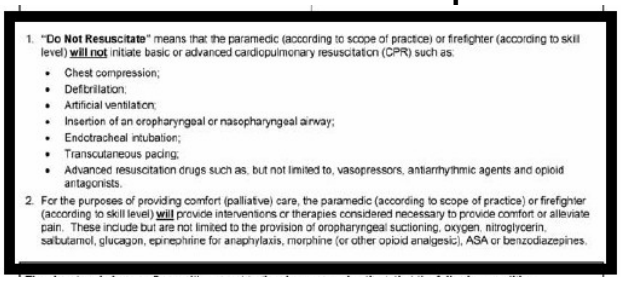
2. Patient must be identified and positive ID made



3. One of tick boxes must be completed



4. All areas must be completed



5. Intervention Options

Guidelines & Policies

Guidelines for Interaction with a Physician on Scene

Purpose

On occasion, a physician may be on scene rendering care to a patient. The firefighter will continue to treat the patient following accepted directives unless the attending physician wishes to deviate from accepted protocols and the physician assumes full medical responsibility for the patient. If a physician indicates he/she would like the firefighters to deviate from their protocol, firefighters need to communicate the following to the physician:

Procedure

1. If the caregiver identifies themselves as a physician, identify yourself as firefighter certified by a medical director to use the AED.

2. If firefighters have already initiated care, give the physician a brief verbal report that includes the following information:
    - Witnessed or unwitnessed cardiac arrest
    - The number of shocks you have delivered, if any
    - Whether there has been a ROSC.

3. Request permission to continue your directive using the AED (Do not assume the physician knows how to use it).

4. Follow instructions given to you by the physician on-scene within the limits of your training and SCPM Medical Directives.

5. Allow the physician to use the Fire Service AED at his/her request.

6. Be prepared to resume your Medical Directives at any time upon the request of the physician.

7. Document the physician's name.

Guidelines for Cardiac Arrest Transfer of Care to Paramedics

Purpose

Optimal patient care depends on resource coordination and communication. It is the responsibility of all Firefighters to assist Paramedics with ongoing Basic and Advanced Life Support Protocols and to ensure a smooth transfer of patient care to the Paramedics.

Procedure

1. A firefighter will provide a verbal report that includes the following:
    - Witnessed or unwitnessed arrest
    - Presence or absence of bystander CPR, who initiated CPR, how long CPR had been performed
    - Time patient was last seen before collapse/arrest
    - Total number of shocks
    - Total number of “No shock advised” prompts that were received
    - Presence or absence of a return of spontaneous circulation
    - Vital signs, if obtained on a patient with a pulse

2. Paramedics will switch to their own defibrillator at next Fire Service AED analysis. If first on scene, firefighters must attempt to COMPLETE AT LEAST ONE ANALYZE CYCLE before handing over care. Once the analysis has begun, firefighters will complete the analysis shock if indicated.

3. A firefighter who is completing compression-only CPR, waiting for the AED to perform a rhythm analysis, or delivering a shock shall continue until completion of that task before handing over care.

Guidelines for Determination of Obvious Death

Purpose

On occasion, firefighters may respond to a call where the patient has experienced a cardiac arrest and given the length of time between the onset of the arrest and firefighter arrival, or mechanism of death, any resuscitative efforts would be futile. The firefighter may withhold cardiac arrest care if obvious death has occurred.

Conditions

Means death has occurred if gross signs of death are obvious, including by reason of:

1. Decapitation, transection , visible decomposition, putrefaction; or
2. Absence of vital signs and:
    a. a grossly charred body;
    b. an open head or torso wound with gross outpouring of cranial or visceral contents;
    c. gross rigor mortis (i.e. limbs and/or body stiff, posturing limbs or body); or
    d. dependent lividity (i.e. fixed, non-blanching purple or black discolouration of skin in dependent are of body)

Procedure

1. The firefighter must be certain that obvious death has occurred.

2. Resuscitation efforts can be withheld.

3. Full resuscitative efforts must be made immediately if any doubt exists. Always err on the side of resuscitation if you are uncertain whether obvious death exists.

Clinical Considerations

Hypothermic patients can exhibit many of the signs of rigor mortis. Never assume death in a hypothermic patient.

Guidelines for Prehospital DNR and Expected Death

Purpose

If a MoH DNR is available, stopping unwanted resuscitation efforts is a compassionate response to patients at the end of their lives.

Procedure

1. When firefighters arrive at the scene of a cardiac arrest, they will initiate patient care as per their directives.

2. If presented with a MoH DNR Confirmation Form (or photocopy), firefighters (usually the Officer in Charge) will verify that it bears a serial number in the upper right, and that **all** of the following four items are completed correctly:
   - Correct name of patient
   - A check mark in one of the boxes indicating CPR is not part of the plan of treatment
   - Name and profession of the health care provider
   - Signature and date when the form was completed

3. No other type of DNR form may be accepted by firefighters.

4. Verbal orders to discontinue resuscitative efforts made by a physician, in person, directly to the Officer in Charge at the scene will be respected. The Officer in Charge must be satisfied that the person making the request is indeed a physician licensed to practice in Ontario. Before the Officer in Charge authorizes stopping resuscitation, the physician must indicate that s/he will assume responsibility for the patient and will remain on scene until the arrival of a paramedic crew. If the physician does not comply with the requests of the Officer in Charge, the ***Medical Cardiac Arrest Directive*** will be initiated.

5. In the absence of a DNR Confirmation Form or a physician on scene, if there is any attempt to prevent firefighters from carrying out their resuscitative efforts, police assistance should be requested as early as possible. Any incident of this nature must be thoroughly documented.

Clinical Considerations

Despite the presence of a valid MoH DNR form, the Power of Attorney (POA) can decide to reverse the DNR status. In these cases, listen to the POA. The POA should be assumed to be acting in the best interests of the patient.

Guidelines for Expected Death in the Home When There is No DNR Confirmation Form

Purpose

These guidelines are intended to provide firefighters with clear procedures to follow when faced with caregivers or family members who refuse to allow resuscitation of a patient.

Conditions

These guidelines are intended for use only in cases of expected death in residences and only when there is no accompanying MoH DNR Confirmation Form. Various factors at the scene can substantiate the expected nature of a death. These may include but are not limited to:

- history of a terminal illness presented to the firefighter
- evidence of physical wasting (e.g. gaunt or emaciated appearance)
- catheters in place in the patient (plastic tubes leading from the patient's nose, mouth, chest or abdomen)
- presence of home care equipment in the home (hospital-type bed, intravenous equipment, bedpans, urinals, etc.)
- presence of highly potent narcotic analgesics such as morphine, hydromorphone or oxycodone in tablet or intravenous form.

Procedure

1. In all cases where a VSA patient is encountered, full resuscitation, including defibrillation if indicated, must be initiated.

2. If a family member or caregiver refuses to allow resuscitation, or requests the fire crew not resuscitate the patient, the company officer will ask if the family has a MoH DNR Confirmation Form. If they do not produce one, the officer will explain the obligations of the firefighters to resuscitate. If resuscitation has started, the other crew members should continue with resuscitation during this time.

3. If the family member or caregiver again refuses resuscitation, or again asks that no resuscitation occur, the officer will again explain the obligation to resuscitate and proceed with resuscitation.

4. If the officer determines that continuing or attempting resuscitation could result in physical or verbal confrontation, resuscitation attempts can be discontinued.

5. Report family's refusal to paramedics arriving on scene.

6. Complete documentation is essential in these cases. Full documentation of the incident including circumstances of the call, observations at the scene, assessment of the patient, discussions with the family member(s) or caregiver(s), and actions taken should occur.

Firefighter Certification Policy

Ongoing competence in the medical directives is demonstrated by meeting the standards set out below by the Medical Director. A firefighter must be certified by the Medical Director to perform medically delegated acts. Certification and on-going training is provided through the Training Division.

Procedure

To demonstrate continuing competency in the medical directives, the following must take place:

1. The firefighter must re-certify every year to the standards set by the Medical Director.
2. Protocols must be followed at all times.
3. The firefighter must not have had two or more major infractions to protocols, policy or procedures in any 12-month period.

Failure to meet any of the above criteria may result in deactivation of the firefighter until a meeting has been held with Medical Director.

MAJOR INFRACTION TO A MEDICAL DIRECTIVE

A major infraction to a protocol is defined as a procedure or omission that could have a potentially detrimental impact on either patient outcome or provider and bystander safety. Two or more major infractions to protocols, policy or procedures in any 12-month period may result in decertification. Examples include:

- Not shocking a patient when instructed to do so by the AED when patient is in a shockable rhythm.
- Not taking the AED to patient in cardiac arrest.
- Injury to bystander when shocking a patient.

If a major infraction to protocol, policy or procedure has occurred, the Medical Training Officer must contact the firefighter and his/her Company Officer within 10 calendar days of being made aware (holidays and vacation notwithstanding). Verification of clinical protocols, policies and procedures will take place between the firefighter, Crew and the Medical Training Officer.

If a crew is aware that they may have an infraction to protocol, the Company Officer must contact the Medical Training Officer and discuss the circumstances involving the infraction. The Medical Training Officer will contact the Medical Director and at that time further follow-up action will be determined.

Deactivation and Decertification Policy

The Medical Director has the right to deactivate a firefighter for any obvious or suspected major infraction at any time, pending an investigation. The Medical Director is the only one that has the authority to decertify a firefighter.

SCPM will consider a firefighter to be deactivated if he/she has had a hiatus from working in the field as a firefighter for a period of 6 months or longer, or has not participated in the yearly re-certification.

Procedure

1. Deactivation will be initially communicated to the firefighter in person if possible or by phone. Follow-up written notification will come from the Medical Director or his designate.

2. Recertification of the firefighter will be granted at the discretion of the Medical Director or his designate and once the firefighter has demonstrated competence.

3. The Medical Training Officer, following direction of the Medical Director, will provide the appropriate training:
    a. Informal re-fresher or follow-up training.
    b. Review of yearly Continuing Medical Education (CME).

4. If a firefighter is deactivated twice in any 12-month period, he/she will remain decertified until attending a complete certification course.

5. Deactivation will be communicated to the firefighter by phone and in writing as part of the back to work procedure as dictated by the Fire Service.

6. The Medical Training Officer will provide a re-activation course for the deactivated firefighter if indicated by the Fire Service in the back to work procedure.

7. Decertification/Deactivation and Recertification/Reactivation of a firefighter will be communicated to the Fire Chief or their designate.

8. Decertification/Deactivation, remedial activities and Recertification/Reactivation of a firefighter will be recorded and appropriate files will be maintained by the Fire Service Training Division.

Documentation Standard

- Medical Assist Records (MAR) should be submitted in either written or electronic format
- Information contained in reports shall be of a completeness and quality suitable for use as evidence in an investigation or legal proceeding
- A Medical Assist Record (MAR) shall be completed for each instance where a firefighter or police officer performs a medically delegated act or attends a medical call. This includes documentation of at least one full set of vitals to the scope of the providers practice (heart rate, blood pressure, respiratory rate, Sp02 and temperature).
- Each Fire Service or Police Department may use their own approved MAR or the Southwest Centre for Pre-Hospital Medicine (SWCPM) provided MAR.
- The Fire Service or Police Department is required to provide biometric data to the SWCPM for calls where the AED is utilized
- In each instance a firefighter or police officer performs a medically delegated act a MAR must be completed and contain the below information:
  - Incident number
  - Date
  - Name of firefighter or police officer completing the form
  - Location of event
  - Platoon
  - Vehicle number
  - Time on scene
  - Time of patient contact
  - Time of transfer of care
  - Patient name
  - Patient date of birth
  - Patient sex
  - Patient address
  - Chief Complaint:
    - Medical VSA *or*
    - Trauma VSA *or*
    - Suspected Opioid Overdose *or*
    - Anaphylaxis *or*
    - Other: _____
  - Level of Consciousness
    - Alert *or*
    - Rouses to verbal stimuli *or*
    - Rouses to painful stimuli
  - Incident History

  - Full set of Vitals (patient is not in cardiac arrest) to the scope of the responder's practice
    - Heart Rate
    - Blood pressure
    - Respiratory Rate
    - SpO2
    - Temperature (If equipment available)
    - SpCO (If equipment available and suspicion for CO toxicity)
  - Any additional pertinent information related to the call
- In instances of Trauma VSA or Medical VSA the below information must be included:
  - Time CPR initiated
  - Who initiated CPR:
    - Firefighter *or*
    - Bystander *or*
    - Police Officer
  - Arrest witnessed by:
    - Not witnessed *or*
    - Fire *or*
    - Police *or*
    - Bystander
  - Defibrillation
    - Time AED applied
    - 1st shock provided by
      - Fire *or*
      - Police *or*
      - Bystander
    - Additional defibrillation attempts
      - Include "Shock" and "No Shock" prompts from AED
- In the instance of airway interventions, the below interventions must be included:
  - Amount of oxygen provided
  - Type of airway utilized
    - OPA (including size inserted) *and/or*
    - BVM *and/or*
    - Oxygen mask:
      - Nasal Prongs *and/or*
      - Non-rebreather mask
- In the instance of medication administration (if authorized), the below information must be included:
  - Name of medication
  - Route of Medication
    - Intramuscular – include location of injection
    - Intranasal – include which nares
  - Dose of medication
  - Time medication administered

London Health Sciences Centre

Southwest Centre for Prehospital Medicine