ROC CONTINUOUS CHEST COMPRESSIONS STUDY (CCC): MEDICAL CARDIAC ARREST MEDICAL DIRECTIVE

An Advanced Care Paramedic will provide the treatment based on the randomization scheme and as prescribed in this medical directive if certified and authorized

INDICATIONS

Non-traumatic cardiac arrest

CONDITIONS

CPR

AGE:	≥ 18 years
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

Manual Defibrillation

AGE:	≥ 18 years
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	VF or pulseless VT

AED Defibrillation

AGE:	≥ 18 years
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Shockable rhythm Alternative to manual defibrillation

Epinephrine

AGE:	≥ 18 years
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

Amiodarone

AGE:	≥ 18 years
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	VF or pulseless VT

Lidocaine

AGE:	≥ 18 years
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	VF or pulseless VT where amiodarone is not available

0.9% NaCl Fluid Bolus

AGE: ≥ 18 years

LOA: Altered

HR: N/A

RR: N/A

SBP: N/A

Other: PEA

CONTRAINDICATIONS

Study exclusion

Blunt, penetrating or burn based arrest

DNR / DNAR

Primary asphyxia or respiratory based arrest

Advanced airway placed prior to arrival

Uncontrolled bleeding or exsanguination

Prisoner

Witnessed arrest

CPR

Obviously dead as per BLS standards

Meet conditions of DNR standard

Manual Defibrillation

Rhythms other than VF or pulseless VT

AED Defibrillation

Non-shockable rhythm

Epinephrine

Allergy or sensitivity to epinephrine

Amiodarone

Allergy or sensitivity to amiodarone

Lidocaine

Allergy or sensitivity to lidocaine

Use / Availability of amiodarone

0.9% NaCl Fluid Bolus

Fluid overload

TREATMENT

Consider ***CPR:***

	Standard CPR	**Continuous compressions**
Initial cycle	Until CPR process measuring pads in place	Until CPR process measuring pads in place
Subsequent cycles	2 min	2 min
Ventilation	2 every 30 compressions	1 every 10 compressions

Consider ***intravenous or intraosseous initiation:*** (if certified and authorized) within 5 minutes of arrival on scene

Consider ***Manual defibrillation***:

	VF / pulseless VT
Dose	1 shock
First dose	As per Base Hospital
Subsequent doses	As per Base Hospital
Dosing interval	2 min.
Maximum doses	N/A

Consider ***AED defibrillation***: (alternative to manual defibrillation)

	Shockable rhythm
Dose	1 shock
Max. single dose	As per Base Hospital
Dosing interval	2 min
Max. # of doses	N/A

Consider ***epinephrine:*** should be administered within 5 minutes of ACP arrival on scene. Flush (IV, IO, CVAD) with 20 ml saline

	Route	
	IV / IO / CVAD	*ETT*
Solution	1:10,000	1:10,000
Dose	1 mg	2 mg
Min. single dose	1 mg	2 mg
Dosing interval	4 min.	4 min.
Max. # of doses	N/A	N/A

Consider ***advanced airway insertion:*** after a minimum of 6 minutes (3 full cycles) of CPR

Consider ***CPR:***

	Advanced Airway		
	Yes	**No**	
	Continuous compressions	**Randomized Standard 30:2**	**Randomized Continuous compressions**
Cycle duration	N/A	2 min.	N/A
Ventilation	1 every 10 compressions	2 every 30 compressions	1 every 10 compressions

Consider ***amiodarone:*** as soon as recurrent VT or VF is documented. Flush with 20 ml saline.

	Route
	IV / IO / CVAD
Initial Dose	300 mg
Max. initial dose	300 mg
Repeat dose	150 mg
Max. repeat dose	150 mg
Dosing interval	4 min.
Max. # of doses	2

Consider ***lidocaine:*** (if amiodarone not available) as soon as recurrent VT or VF is documented. Flush with 20 ml saline.

	Route	
	IV / IO / CVAD	*ETT*
Dose	1.5 mg/kg	3 mg/kg
Min. single dose	N/A	N/A
Dosing interval	4 min.	4 min.
Max. # of doses	2	2

Consider ***0.9% NaCl fluid bolus***:

	Route
	IV / IO / CVAD
Infusion	20 ml/kg
Infusion interval	Immediate
Reassess every	250 ml
Max. volume	2,000 ml

Consider ***titrating oxygen:*** after ROSC with palpable pulses for more than 20 min to 94-98%

Consider ***calling the notification line:*** as soon as possible after arriving the receiving facility

In Toronto it is the cardiac Arrest Notification (CAN) line

In Ottawa it is the Study Notification line

CLINICAL CONSIDERATIONS

1. The IV and IO routes of medication administration are preferred over the ETT route. However, ETT administration may be used for epinephrine and lidocaine only, if the IV/IO routes are delayed (eg. > 5 min.)
2. Early administration of IV medications is essential and the first dose of epinephrine and antiarrhtyhmic (when indicated) should be administered within 5 min of ACP arrival at scene
3. Early application, even with BVM, of ETCO2 is desirable to guide quality of CPR and confirm placement of an advanced airway.
4. Unless airway compromise is present, delay the insertion of the advanced airway until after 3 full cycles of CPR.
5. CPR to be performed to Guidelines 2010 recommendations:
   - Compressions: minimum 5 cm in depth at a rate of 100 to 110 per minute.
   - Ventilations: Standard CPR: ventilation volume is 500 ml over 1-2 seconds
     Continuous compressions: ventilation volume is 500 ml during the upstroke of every 10^{th} compression without pausing compressions
6. In AED mode, chest compressions may be performed during the defibrillator charge cycle to minimize the pre-shock pause and maximize chest compression fraction.