Cardiac Arrest
(CAPE)
Protocol

Douglas County KS EMS System **November 2022**

Reference Procedures: Autopulse, BVM, Confirmation of ET placement, Endotracheal Intubation, ETCO2, I-gel, Intraosseous Infusion, ResQpod

Goals for Patient Care:

- Rapid initiation of CPR, ventilations, auto pulse deployment
- Identification and treatment of reversible causes
- Appropriate transport or in field termination of ROSC

Medications:

ADULT Medications:	PEDIATRIC Medications:
	Refer to HandTevy
• **Epinephrine:** 1 mg every 5 min. IV/IO	• **Epinephrine:** 0.01 mg/kg every 3-5 min. IV/IO
• **Amiodarone:** 300mg repeat in 5 min at 150mg.	• **Amiodarone:** 5mg/kg q 5 min max of 15mg/kg
• **Calcium Chloride:** (suspected hyperkalemia): 1 Gram IV/IO push. ☎ Contact Medical Control for repeat dosing	• **Calcium Chloride:** (suspected hyperkalemia): 20 mg/kg, IV/IO push. ☎ Contact Medical Control for repeat dosing
• **Sodium Bicarb:** 1.0 meq/kg IV/IO Push	• **Sodium Bicarb:** 1.0 meq/kg IV/IO Push
• **Defibrillation:** 120J, 150J, 200J, 200J	• **Defibrillation:** 2 J/kg, 4 J/kg, 4 J/kg

Adult Non Traumatic Cardiac Arrest:

- Start Manual CPR at 30:2 compression rate
- If First Responders arrive on scene first and no AutoPulse is present, use the ResQPump system and ResQPod 10 for no less than 10 minutes. The ResQPump supercedes the AutoPulse until the 10 minute mark, then AutoPulse can be quickly applied.

- **First Responders:** Apply AED promptly (pad placement anterior/ posterior), ANALYZE rhythm and evaluate need for defibrillation. **PULSE CHECKS SHOULD TAKE NO LESS THAN 5 Seconds, no longer than 10 seconds.**
- While igel is prepared, ventilate using 2-hand seal on BVM mask with airway stack
    - Airway stack:
        - Airway Device (ET, mask, Igel)
        - ResQPod
        - ETCO2 filter line set
        - Accuvent sensor
        - Viral filter
        - BVM bag
- Continue manual CPR at 30:2 rate/ResQPump
- Apply defibrillation pad to anterior (Purple: normal placement) and posterior positions (Red: just below left scapula) Ensure CPR puck is separated from Stat Pad
    - If arrest is WITNESSED by EMS immediately defibrillate
    - If UNWITNESSED by EMS, perform high quality CPR for 2 minutes
- **Insert igel airway within the first 3 minutes of arriving at the patient. This does not supersede compressions**
- Prepare Auto Pulse and ready patient for movement to the Auto Pulse device
- Place patient onto Auto Pulse device, secure and start mechanical CPR WITHOUT DELAY with continuous compressions while securing patient harness
- If igel cannot be established early, use BVM and mask. After 2 failed igel attempts, continue BVM and OPA/NPA. If proper ventilation is unobtainable via igel or BVM, consider intubation. Ideally, intubation should occur when patient is placed on the cot.
- Accomplish all of the above steps while maintaining high-quality CPR
- Prepare and lower the cot.
- Lift patient onto the cot.
- If the patient's EtCO2 is at 20mmHG or above, then raise the patients head to 30 degrees and secure the patient to the cot
- Monitor EtCo2 reading and ventilate to keep values within 35-45mmHg
- Every 2 minutes, perform a brief (<5 second) pause to evaluate underlying rhythm. If indicated (coarse V-Fib/V-Tach) defibrillate patient at optimal time with mechanical CPR in progress - keep in mind patient may require multiple defibrillations.
- When rhythm clarification is needed, a pause < 5 seconds is acceptable
- Resume mechanical CPR and defibrillate with the Auto Pulse running if shock is indicated
- Obtain IV/IO access (IV preferred), obtain rapid bedside glucose
    - IV in left AC is preferred for drug administration
    - After 2 failed IV attempts, IO should be attempted in the humeral head
- Administer Epinephrine every 5 minutes
- Administer Amiodarone if indicated (30 seconds to 1 minutes between different medication administrations). IV is preferred as more efficacious.
- Monitor SpO2 and EtCo2 for significant changes as they may indicate ROSC

Decision to Terminate Resuscitation Efforts:

If after 30 minutes of appropriate EMS resuscitative care, patient ETCO2 is trending downwards, ETCO2 is less than 15 mmHg, and no shockable rhythm is present, contact medical control for termination orders

Notes:

Pull arms up above the patient's sides in order to not encompass into the Auto Pulse band.

If mechanical CPR fails, immediately start high quality manual CPR and continue to troubleshoot the failure

Arrest associated with pregnancy:

- During resuscitation remember there are two patients, the mother and the fetus
- The best hope of fetal survival is maternal survival
- Rapid transport to the closest emergency department is advised

Treatment:

- Manually displace uterus to the left by pushing the uterus laterally while patient is lying supine
- If possible place patient in the left lateral position
- Follow adult non-traumatic cardiac arrest protocol
- Be prepared to use smaller ET tube
- Ventilation volumes may need to be decreased due to elevated diaphragm

Notes:

- If patient is in cardiac arrest and is a dialysis patient, consider administration of the calcium carbonate prior to the first dose of epinephrine because of potential hyperkalemia
- Bolus medication should be administered rapid IV or IO push at the port site closest to the heart. After each IV medication administration give a bolus of IV NS and elevate the extremity. This should improve drug delivery
- If problems arise (i.e. scene becomes unsafe, inability to intubate or obtain access, etc.) It is valid to continue good CPR and proceed to the nearest appropriate hospital
- Contact medical control as needed for additional consultation
- If using IGEL and ETCO2 suddenly drops re seat IGEL and recheck ETCO2

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Hypothermia Induced Cardiac Arrest:

- If V-fib or pulseless V-tach administer one shock
- Obtain core (rectal) temp:
- Establish IV & obtain blood glucose
- Administer fluid bolus if clinically appropriate
- Prevent further heat loss:
    - Insulate from ground
    - Protect from wind
    - Remove wet clothing
- Wrap patient in mylar blanket over bare skin and cover with dry blankets

Potential Cause Of PEA	Treatment
Hypovolemia (Most common cause)	Normal Saline 1-2 liters IV/IO
Hypoxia	Secure airway and ventilate
Hydrogen Ion, Acidosis	Sodium Bicarbonate 1mEq/kg IV/IO
Hyperkalemia (End stage renal disease)	Sodium Bicarbonate 1mEq/kg IV/IO
Hypothermia	Active Rewarming
Toxins (Drug overdose)	See below
Tamponade, Cardiac	Normal Saline 1-2 liters IV/IO Expedite transport
Tension Pneumothorax	Needle Thoracostomy
Thrombosis, Coronary	Expedite transport
Thrombosis, Pulmonary	Expedite transport

Defibrillation Guidelines

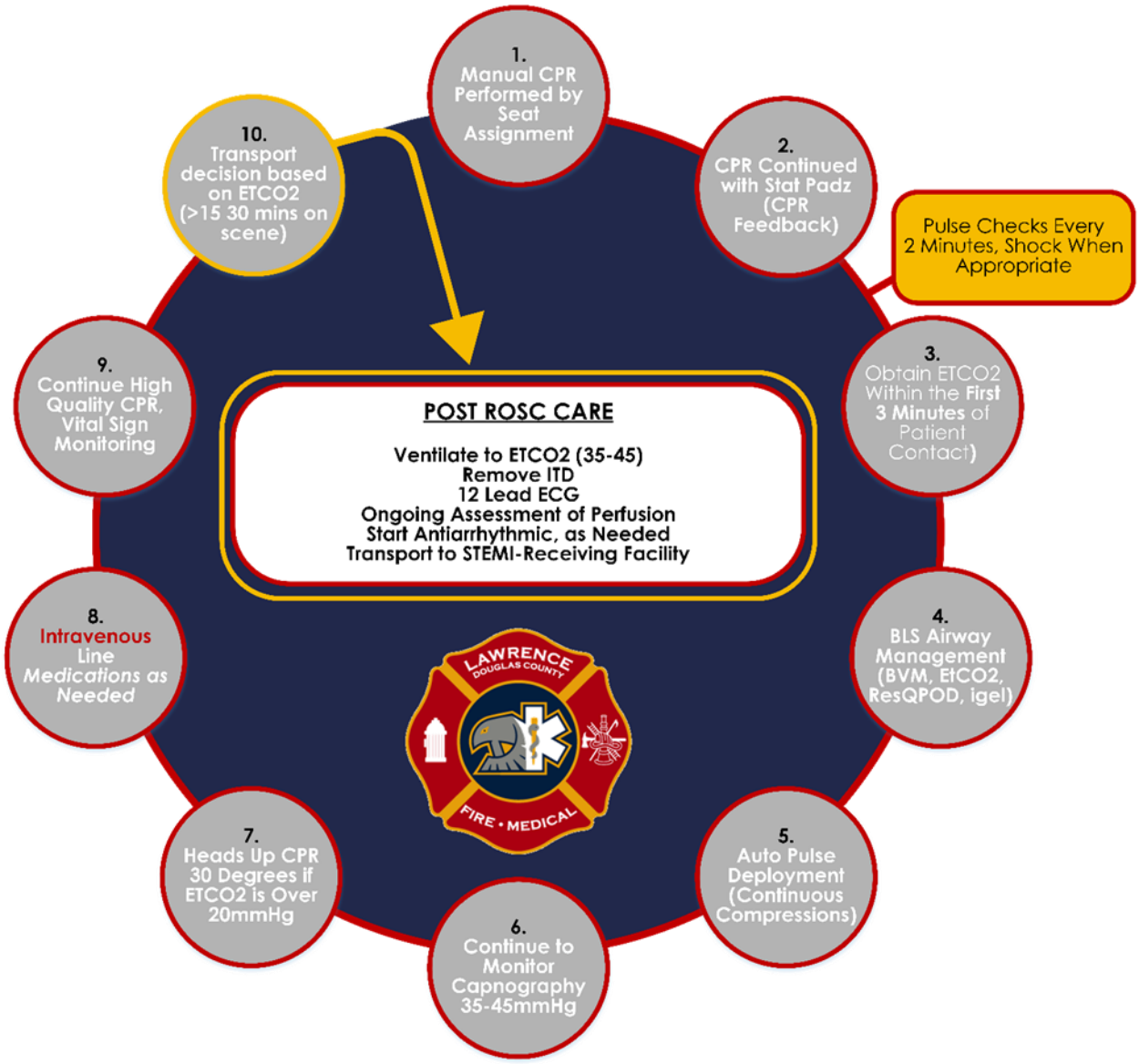
WITNESSED: VFib/VTach arrest by EMS = Immediate Defibrillation

UNWITNESSED: 2 minutes of high quality manual CPR or mechanical CPR then evaluate rhythm, defibrillating in escalating doses and timing of defibrillation per current protocol

Drug Overdose:

- Glucagon 3mg IV/IO for calcium channel and B blocker OD
- Sodium Bicarbonate 1mEq/kg IV/IO for tricyclic antidepressant OD
- Narcan is not recommended for an Opioid Overdose if the patient is Cardiac Arrest.

Wheel of Survival



Considerations

Considerations for crews prior to ambulance arrival.

- Insure scene is safe for crews to work in.

a. Unsafe environment may warrant patient to be moved before beginning care.

b. If there is not adequate space to allow crews to work then consider moving patient to a better location (Ex. Living room, kitchen) or removing furniture/bystanders that may be in the way.

- Work within your scope of practice to insure CAPE protocol is being followed.

a. CPR is the real hero here so make sure QUALITY COMPRESSIONS are happening.

- Gather information from bystander/family-

a. Was the cardiac arrest witnessed/unwitnessed by family/bystander?

b. If witnessed, ask what patient was doing right before the arrest.

c. Obtain a health history from family if prudent on patient including any medical conditions, allergies to medication and current medication list.

- Considerations for pediatrics.

a. The most common cause for pediatric arrest is respiratory failure. Closely monitor ventilation efforts to insure the patient is not being hyperventilated as the lungs are more fragile in pediatric cases.

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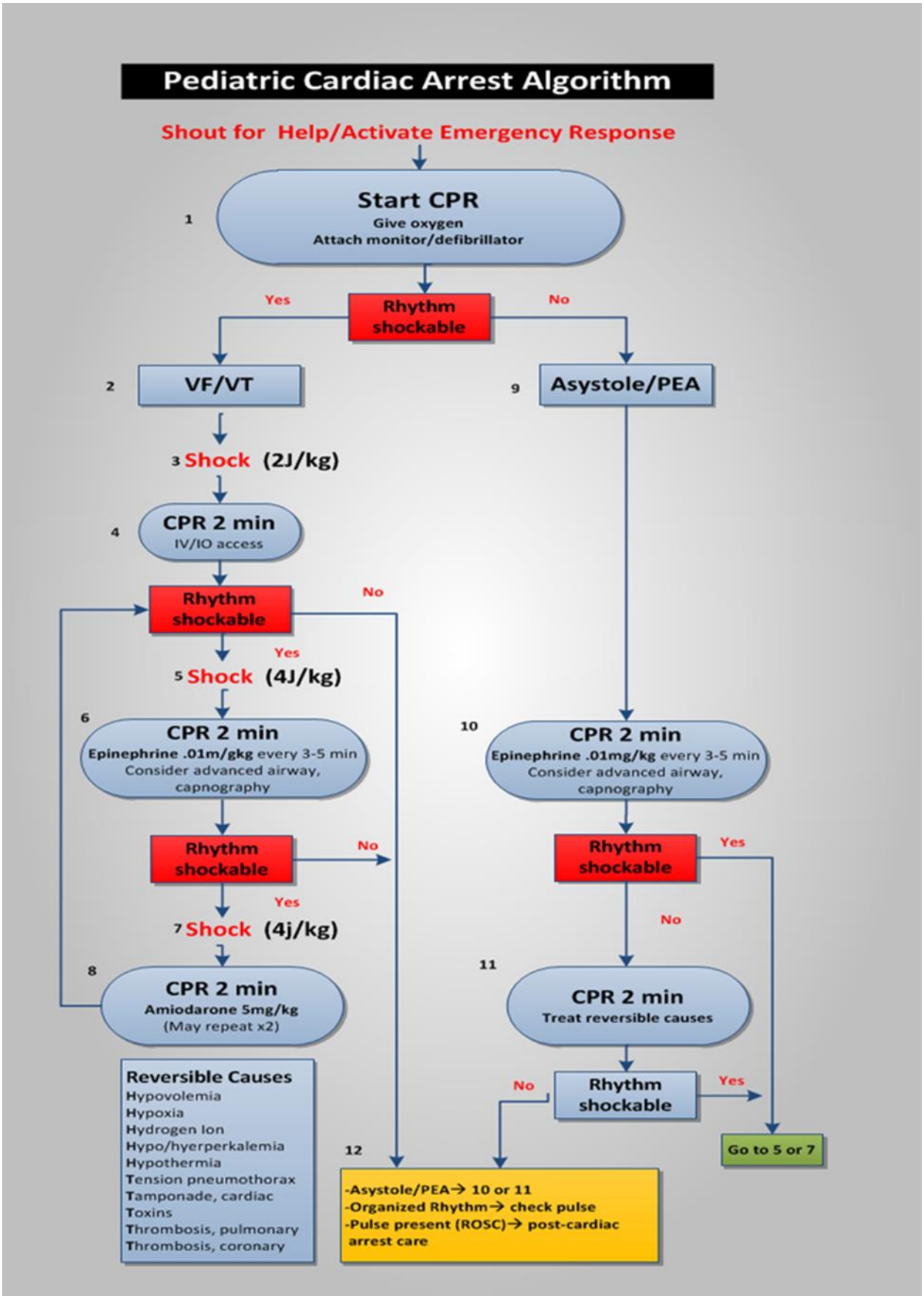

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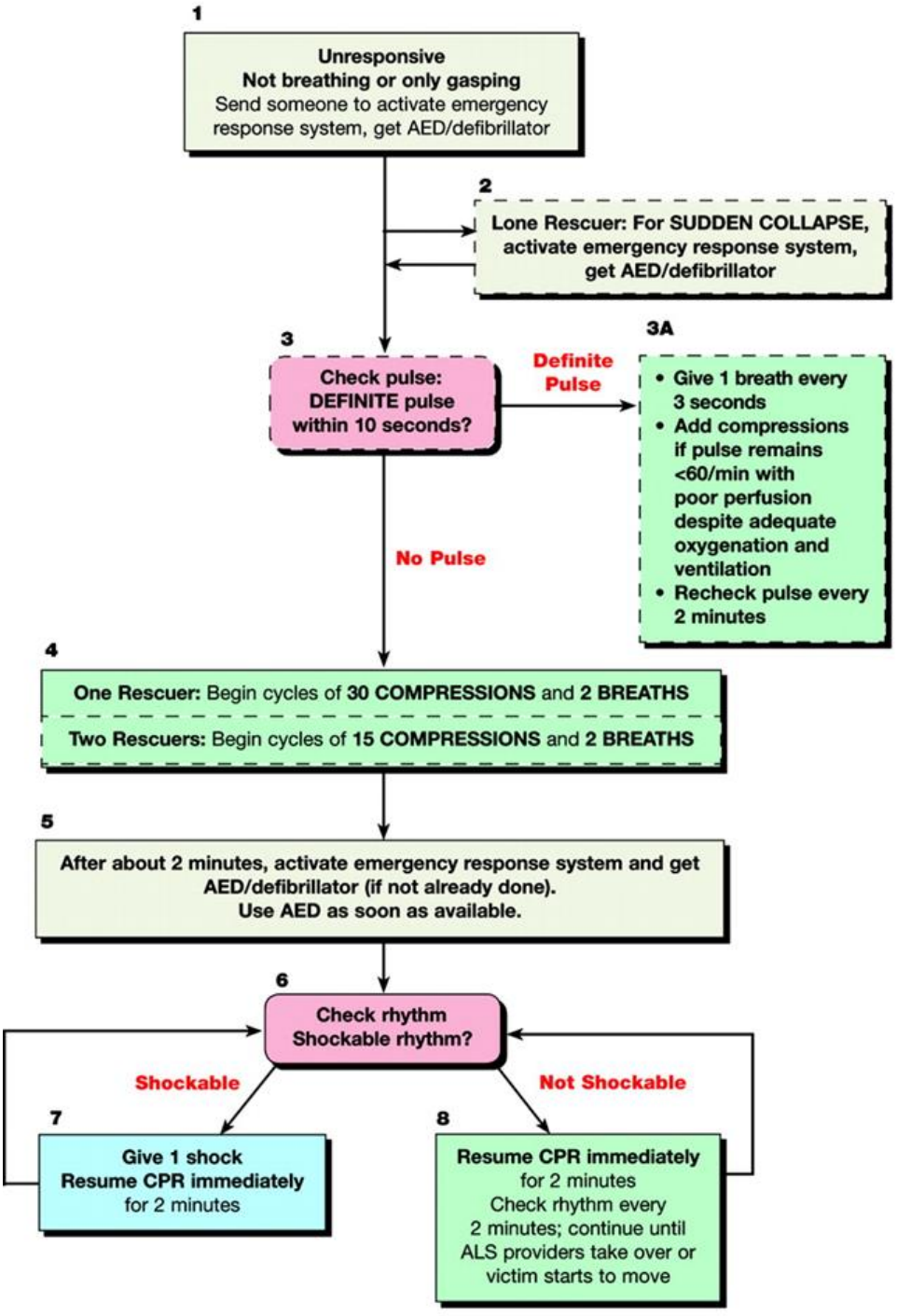
Pediatric BLS Healthcare Providers



High-Quality CPR

- Rate at least 100/min
- Compression depth to at least ⅓ anterior-posterior diameter of chest, about 1½ inches (4 cm) in infants and 2 inches (5 cm) in children
- Allow complete chest recoil after each compression
- Minimize interruptions in chest compressions
- Avoid excessive ventilation

Note: The boxes bordered with dashed lines are performed by healthcare providers and not by lay rescuers