

# SAMPLE RESQCPR SYSTEM PROTOCOL

*NOTE: This sample may be useful in helping your organization write a ResQCPR System protocol. It is a guide only, and it is the responsibility of each organization's medical director to determine how the ResQCPR will be used in their organization. Read all product packaging for complete information on instructions for use prior to use, and prior to finalizing your protocol.*

## PURPOSE

This document provides suggested recommendations for the use of the ResQCPR™ System, which includes the ResQPOD® ITD 16 and the ResQPUMP® ACD-CPR Device.

The ResQPOD ITD 16 is an impedance threshold device (ITD) that regulates airflow into the lungs during CPR to enhance the negative pressure (i.e., vacuum) in the chest, allowing more blood to be pulled back to the heart, and lowering intracranial pressure.

The ResQPUMP ACD-CPR Device is used to perform active compression decompression CPR (ACD-CPR), which is intended to promote complete and active chest wall recoil to further enhance the vacuum. Used together, these devices increase blood flow to the brain and vital organs, and improve the likelihood of survival.

## INDICATIONS

The ResQCPR System is intended for use as a CPR adjunct to improve the likelihood of survival in adult patients with non-traumatic cardiac arrest.

## CONTRAINDICATIONS

None known.

## WARNINGS

- Improper use of the ResQCPR System could cause serious injury to the patient and ineffective chest compressions/decompressions. The ResQCPR System should only be used by personnel who have been trained in its use.
- Improper positioning of the ResQPUMP suction cup may result in possible injury to the rib cage and/or internal organs, and may also result in suboptimal circulation during ACD-CPR.
- Do not use the ResQPUMP if the patient's chest is not large enough for the ResQPUMP suction cup to provide adequate compressions/decompressions during use.
- Moisture, gels, or other lubricating materials on the patient's chest should be removed before applying the ResQPUMP. Failure to do so may result in sliding of the suction cup on the chest, ineffective chest compressions/decompressions, and possible injury to the rib cage or internal organs.
- The ResQPUMP should not be used in patients who have had a recent sternotomy. Use of the ResQPUMP in patients with a recent sternotomy (within the past 6 months) has not been evaluated, but this may potentially cause serious injury.

# SAMPLE RESQCPR SYSTEM PROTOCOL

## PRECAUTIONS

- The safety and effectiveness of using the ResQCPR System to treat cardiac arrest in patients with drug/medication overdose etiology have not been assured.
- If the patient has a return of spontaneous circulation (ROSC) (e.g. palpable pulse) during the resuscitation efforts, the ResQPOD should be immediately removed from the airway circuit and use of the ResQPUMP should be discontinued. Failure to do so may cause shortness of breath, difficulty breathing and potential pulmonary edema if the patient begins to breathe spontaneously.
- The ResQCPR System has not been studied in the setting of in-hospital cardiac arrest. Therefore, the safety and effectiveness of the device in this setting are unknown. Clinical outcomes when using the ResQCPR System in the setting of an in-hospital cardiac arrest may be different from the outcomes observed in the clinical trials of out-of-hospital cardiac arrest.
- Safety and effectiveness of the ResQCPR System in pregnant women and children under the age of 18 have not been studied in clinical trials.
- Safety and effectiveness of the ResQCPR System in the setting of traumatic injury (wounds resulting from sudden physical injury) have not been established.

## PERFORMING CPR USING THE RESQCPR SYSTEM IN ADULTS

1. Before beginning CPR with the ResQCPR System (ACD-CPR with an ITD), assess the patient for signs of circulation (e.g., consciousness, breathing, coughing, movement, pulse). If no signs of life are present, begin performing ResQCPR as soon as possible, but do not delay chest compressions while preparing the ResQCPR devices.
2. Perform active compression decompression CPR (ACD-CPR):
  - Position the ResQPUMP's suction cup in the middle of the sternum, between the nipples (mid-nipple line). Make sure that the edge of the suction cup does not extend below the xiphoid process, as this could result in inadequate suction and/or rib injury.
  - Turn on the metronome and begin performing compressions at a rate of 80/min:
    - Perform chest compressions at the recommended compression to ventilation ratio. Use a 50% duty cycle, spending equal time compressing and lifting. Avoid interruptions.
    - Compression: Compress to recommended depth (e.g. 2" or 5 cm). Observe the force required to achieve that depth, as it will vary according to how compliant the chest is. The tip of the red arrow indicates the force being applied. Once the amount of force required is known, use that target as a guide for continued compressions. The approximate amount of force required to compress the chest 2 inches is as follows:
      - 30 kg: soft/supple chest
      - 40 kg: chest of average compliance
      - 50 kg: stiff/rigid chest

## SAMPLE RESQCPR SYSTEM PROTOCOL

- Compress with elbows locked and shoulders directly over the sternum. Bend at the waist, using the entire upper body and large thigh muscles to compress and lift.
  - Compress at a rate of 80/min using the metronome (push button) as a guide (compress on one tone, lift on the other tone). Use the force gauge to monitor forces and rescuer fatigue.
  - Decompression: To fully achieve the benefits of ACD-CPR, attempt to actively pull up until the tip of the red arrow on the force gauge registers  $\approx 10$  kg. Lift using the upper body and large thigh muscles, and bend at the waist. If the suction cup dislodges, then pull up with slightly less force on the subsequent compression. It is not necessary to lift with more than 10 kg of force.
3. Attach the ResQPOD ITD 16 to the facemask as soon as chest compressions begin; use a 2-handed technique to maintain a tight facemask seal and airway position.
  4. After 30 compressions, pause and use one hand to administer two ventilations (one second duration each) until the chest rises.
  5. Continue to provide a 30:2 compression to ventilation ratio until a pulse returns or an advanced airway is placed.
  6. Once an advanced airway (e.g., ET tube, supraglottic airway) is placed:
    - Confirm tube placement and secure with commercial tube restraint.
    - Move the ResQPOD to the airway and turn on the timing assist lights.
    - Provide asynchronous ventilations; ventilate once (over one second) until chest rise is seen, each time light flashes (10/min).
    - Perform continuous chest compressions at 80/min. Do not pause compressions for ventilations.
  7. Rotate ACD-CPR duties every two minutes (or more often) to avoid fatigue.
  8. If the patient has a return of spontaneous circulation (ROSC) the ResQPOD should be immediately removed from the airway circuit, and use of the ResQPUMP should be discontinued. Support ventilations as needed.
  9. If the patient re-arrests, resume use of both devices immediately.

### SPECIAL CONSIDERATIONS:

- Signs and symptoms of improved cerebral blood flow (e.g., eye opening, gagging, spontaneous breathing, and limb or body movement) have been reported in patients without a pulse but who are undergoing ResQCPR. If these occur, check quickly to see if a pulse has returned. If the patient remains in cardiac arrest, continue ResQCPR and contact your medical control authority for guidance on managing these signs and symptoms in an arrested patient.
- Automated CPR is the preferred method of resuscitation if patient transport is required.