



# Madison County EMS



## LUCAS Chest Compression Guideline

The LUCAS Chest Compression System is to be used for performing external cardiac compressions on adult patients who have suffered acute cardiac arrest. The LUCAS system is powered by compressed air from an SCBA bottle.

The advantages of the LUCAS system over traditional manual chest compressions are threefold:

1. The device maintains consistent, proper chest compression over a long period of time.
2. One person is freed from doing compressions and can provide other care.
3. Chest compressions in a moving vehicle become safer for providers.

### Contraindications:

1. Patient is too small. *The suction cup is not being completely compressed when it is lowered.*
2. Patient is too large. *The support legs of the device cannot be locked into place without compressing the patient.*
3. Patient is less than 12 years of age.
4. Traumatic cardiac arrest.
5. Pregnant patients past the first trimester.

### Integrating the LUCAS System into a Working Cardiac Arrest

1. Perform your initial assessment as per protocol. Perform manual CPR until defibrillation pads are applied and the initial rhythm is interpreted and defibrillated if necessary. Be sure to apply the defibrillation pads to a location on the patient that will not conflict with placement of the LUCAS system. If defibrillation pads have been placed prior to your arrival with the LUCAS device, it may be necessary to replace or move them.
2. After the first rhythm interpretation/defibrillation, your next priority, provided that BLS airway interventions are successful, is to apply the LUCAS system. To reiterate, **the LUCAS device is typically a higher priority than advanced airways, IV access, and drugs.** It is the responsibility of the member staffing Response 3 to carry the LUCAS device into suspected cardiac arrest calls.
3. After applying the LUCAS device, pause the device after every 30 compressions to give 2 breaths until an advanced airway is placed. After placement of an advanced airway, the device can give continual compressions.
4. After resuscitation, assess the patient for resuscitation-related injuries.

### Assembly and Application of the LUCAS CPR Device

1. Unpack the LUCAS device and the SCBA bottle. Assure that the knob is in the **Adjust** position (Position 1).
2. Attach the air hose and the SCBA bottle to the regulator.
3. Cease chest compressions.
4. As a team, lift the patient's upper body and lay the back plate below the armpits. If the upper portion of the device is not immediately available, resume compressions until the upper portion is ready.
5. Place the upper portion of the LUCAS over the patient's chest so that the claw locks of the support legs can engage the back plate. Ensure that the patient's arms are outside the device.
6. Engage one leg at a time, starting with the one closest to you. Confirm that both legs are locked.
7. Using the handles, lower the suction cup until the pressure pad inside the cup *touches* the patient's chest. The lower end of the suction cup should be just above the xiphoid.
8. To start compressions, turn the knob to **Active (Position 3)**. Confirm that the device is working properly and check for pulses upon compression.
9. To stop chest compressions, turn the knob to the **Lock (Position 2)** position.



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10. To attach the stabilization strap:
  - a. Assure that both device straps have been secured to the support legs.
  - b. Lift the patient's head and place the support cushion under the patient's neck, as close to the shoulders as possible.
  - c. Connect the buckles on the support cushion strap to the device straps, and tighten.
  - d. Assure that the device is still properly positioned.

### **Transporting the Patient**

1. Secure the patient's arms with the straps on the support legs. Be sure not to apply the straps so tightly that you occlude any IVs.
2. Pause compressions any time you move the patient to the backboard/stretchers. Reverify device placement before resuming compressions.
3. Do not administer compressions while the patient's chest is not horizontal (e.g. going up or down stairs).
4. Assure that the patient is adequately restrained in the ambulance, and assure that the SCBA bottle is secure.

### **Care after Use**

1. Clean all outer surfaces of the device with a soft cloth, wetted in warm water with soap. Be sure to clean the claw locks and stabilization strap as well.
2. Wipe down all surfaces with a clean moist cloth.
3. Disinfect the LUCAS device with disinfectant solution and cloth.
4. Allow the device to dry before packing back into the bag.