MEDICAL CONTROL DIRECTIVE 2024-10

DATE: April 1, 2024

TO: Pinellas County EMS Agencies
Pinellas County Emergency Communications
Pinellas County Certified EMTs and Paramedics
Pinellas County Certified Advanced Practice Paramedics, Nurses
Pinellas County Online Medical Control Physicians
Pinellas County Ambulance Billing and Financial Services
ED Nurse Managers

FROM: Dr. Angus Jameson, EMS Medical Director

RE: **Stryker Lucas 3 External Chest Compression Device Implementation – Limited Scope & System Inservice Assignment**

Effective Date: Immediately

This Medical Control Directive supersedes Medical Control Directive 2023-06

Background:

An internal study of Pinellas County EMS cardiac arrests revealed that CPR performed in austere environments has overall worse chest compression quality when compared to our non-austere patients. It is felt that this is most likely a result of the intrinsic challenges of the austere environment. To provide the best care possible, Pinellas County EMS is evaluating the effectiveness of supplementing manual chest compressions with the Stryker Lucas 3 External Chest Compression device as a component of patient care in these austere situations.

Field Specifics:

1. Beginning immediately, the following stations will each have one “Lucas 3” device available for austere responses to cardiac arrest under a field-testing protocol (attached):
    - St. Pete Beach Fire Rescue (Station 23)
    - Treasure Island Fire Rescue (Station 24)

2. Clinicians at these stations have already undergone hands-on training with the Lucas 3 and will be the primary team members operating the device.

Attachments:

- Protocol CP31 Lucas Mechanical CPR Device
- Protocol CT30 Lucas Quick Reference Guide

Distribution:

- EMS Chiefs e-mail distribution group
- Vector Solutions
- Pinellas County EMS Office of the Medical Director Webpage – www.pcemsomd.com

CP31 LUCAS MECHANICAL CPR DEVICE

INDICATIONS

- Cardiac arrest in austere environment where quality of CPR is expected to be negatively impacted due to environmental factors

CONTRAINDICATIONS

- Patient's large body size limits application of Lucas Device – cannot attach upper part to back plate without compressing the chest
- Patient's who are too small to properly touch pressure pad to sternum – 3 quick beeps will indicate if patient is too small
- For use in patients 15 and older, assuming they meet body size criteria above.
- Do not use in obviously pregnant females

CAUTIONS

- **DO NOT put hands, fingers or other objects/body parts near on or below the suction cup when Lucas device is operating.**
- Keep fingers away from claw locks when attaching the upper part or lifting patient.
- Do not lift the device by the shoulder straps. These are only for attaching device to patient.
- Battery must be installed to operate, even when connected to external power supply.

PROCEDURE

1. **Manual chest compressions should be initiated immediately while the LUCAS device is being prepared and placed on the patient. Limit interruptions of compressions to less than 10 seconds.**
2. **Place defibrillation pads anterior/posterior for all Lucas Device Deployments**
3. Clothing MUST be removed from chest to ensure skin contact with suction cup.
4. Press ON/OFF to turn the device on and remove from the case.
5. Place the yellow back plate under the patient's head. During first pulse check, lift patient's shoulders and slide the yellow back plate just below the patients arm pits and centered on the patient's nipple line.
    - If patient is small enough, you may slip the backboard under the patient from the side during compressions.
6. Pull the Release Rings on the Lucas device to open the Claw Locks and extend the arms. Release the rings.
7. Continue manual compressions while attaching the Lucas to the back plate. Attach Lucas device one arm at a time, ensuring the other arm will fit between the compressing medic's arms without interrupting compressions.
8. Ensure that defibrillation pads will be clear of the location of the suction cup.
9. Pause compressions and immediately press the adjust mode button to position the suction to the chest. The lower edge of the suction cup should be immediately above the end of the sternum
10. Press the Pause button to lock in the start position.
11. Press the Active 30:2 button or the Active Continuous button to begin compressions

CP31 LUCAS MECHANICAL CPR DEVICE

PROCEDURE (cont.)

12. Utilize the Pause button as necessary during rhythm or pulse checks or upon ROSC.
13. Place the neck roll behind the patient's head and attach the straps to the LUCAS device (to prevent the LUCAS from migrating toward the patient's feet).
14. Place the patients' arms in the arm straps provided.
15. Monitor the device and ensure that it remains in the correct position throughout the resuscitation. You may mark the patient's skin with a marker to rapidly identify any movement
16. If disruption or malfunction of the LUCAS device occurs, immediately revert to manual compressions.
17. If ROSC or efforts are terminated, press and hold the ON/OFF button for one (1) second to turn device off.
18. If transitioning to hospital care with ongoing compressions:
    - Hospital has Lucas device for use during CPR: during PULSE CHECK, remove our device and attach hospital device to our back plate. Crews will stay on scene until ROSC or efforts terminated to obtain original backboard. Do NOT swap EMS with hospital equipment
    - Hospital does NOT use Lucas device: continue mechanical CPR until next appropriate pulse check. During first pulse check, remove Lucas device but keep back plate in place. Remove backboard during the next pulse check. If device or back plate cannot be removed during regular pulse check or if removal will interfere with compressions, wait until ROSC or efforts are terminated to obtain equipment.
19. Once done, refer to maintenance of Lucas Device (below) for cleaning, storage, and battery charging.
20. Document in ePCR by selecting the **"Lucas"** intervention tab.

DEFIBRILLATION:

- Defibrillation can and should be performed with the LUCAS device in place and in operation. One may apply the defibrillation electrodes either before or after the LUCAS device has been put in position.
- The defibrillation pads and wires should not be underneath the suction cup. If the electrodes are already in an incorrect position when the LUCAS is placed, you must apply new electrodes.
- Defibrillation should be performed according to EMS protocols and following the instructions of the defibrillator manufacturer. If the rhythm strip cannot be assessed during compressions, one may stop the compressions for analysis by pushing the PAUSE BUTTON (The duration of interruption of compressions should be kept as short as possible and should not be > 10 seconds. There is no need to interrupt chest compressions other than to secure airway or analyze the rhythm).
- Once the rhythm is determined to require defibrillation, the appropriate ACTIVE BUTTON (30:2 or continuous) should be pushed to resume compressions while the defibrillator is charging and then the defibrillator should be discharged.

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PROCEDURE (cont.)

MAINTENANCE:

1. Remove the suction cup and the stabilization strap. Inspect for wear and contamination (if used, remove the patient straps)
2. Clean all surfaces and straps with an appropriate alcohol wipes
3. Let the device and parts dry
4. Replace the battery with a fully charged battery
5. Remount (or replace) the suction cup and straps if they are not damaged.
    a. Note: A suction cup is considered reusable if all of the following conditions are met: suction cup can be cleaned and inspected, is without holes, AND can hold suction on a flat surface
6. Repack the device into the carrying bag.

NOTES

- When fully charged, the battery should allow for 45 minutes of uninterrupted operation. There is additional battery in the Lucas Device Bag.
    - The unit may be charged while in the carrying case. Only the main battery charges while plugged into the Lucas device. The backup battery is NOT charged while the carrying case is plugged in. There is an external charger available as needed.
    - The battery may be hot swapped. The device will not work during the battery change, but the current settings will be saved for 60 seconds after power loss.
- When last green bar/LED on battery turns orange, you have 10 minutes left and should replace battery or connect to wall outlet.
- “Austere EMS” is the delivery of EMS care under conditions of limited personnel and equipment resources, and outside the existing framework of normal EMS.
- An austere EMS environment may include elements of any of the following:
    - An ongoing physical environmental threat (e.g., heat, cold, water, wind, or altitude)
    - Limited medical supplies, technologies, or resources
    - Limited medical expertise available
    - Limited communications, including little or no access to medical direction or oversight
    - Limited availability of transportation
    - Altered condition of the medical responder
    - Urgent clinical situation requiring immediate intervention outside of standard protocols
    - Duration of care extended beyond standard operational situations
    - Any other factor or condition that alters the ability of the EMS responder to provide necessary emergency medical care
    - Limited capacity to provide care due to security environment

CT30 LUCAS QUICK REFERENCE GUIDE

stryker

LUCAS® 3 Chest Compression System

Quick reference guide

ON/OFF

ADJUST

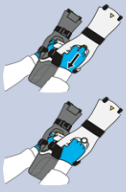
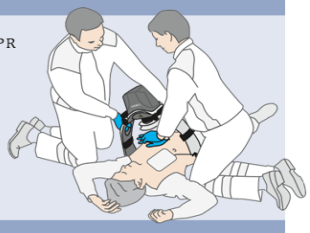
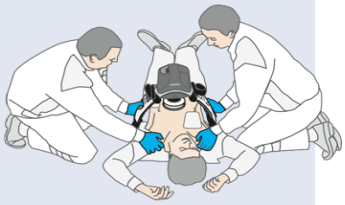
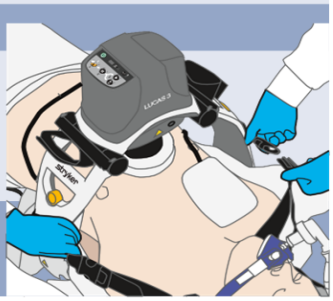
Manual positioning of the Suction Cup

ADJUST

PAUSE

30:2

ACTIVE

Rescuer 1 (LUCAS device operator)	Rescuer 2
1. Power on the LUCAS device	
 • Push ON/OFF to start self-test and power up the LUCAS device • The device will be ready and in the ADJUST mode	• Provide manual CPR 
2. Place the LUCAS BACK PLATE	
 • Pause manual CPR briefly • Put the BACK PLATE under the patient, immediately below the armpits	• Assist BACK PLATE placement • Resume manual CPR 
3. Attach the UPPER PART	
 • Pull the RELEASE RINGS once to open CLAW LOCKS. Then let go of the rings • Stop manual CPR briefly while attaching the UPPER PART to the BACK PLATE. Listen for "CLICK" sound • Pull up once to assure attachment	• Continue manual CPR as long as possible • Help to attach the UPPER PART 
4. Push down SUCTION CUP. Adjust position if needed.	
 • Push down the SUCTION CUP • The lower edge of SUCTION CUP should be immediately above the end of the sternum • Adjust if necessary (stay in ADJUST mode)	• Assist 
5. Lock position. Start compressions.	
 • Push PAUSE to lock START POSITION • Push ACTIVE (continuous) or ACTIVE (30:2) to start compressions	• Assist 
Attach stabilization strap. Follow CPR protocols.	

The LUCAS 3 device is for use as an adjunct to manual CPR when effective manual CPR is not possible (e.g., transport, extended CPR, fatigue, insufficient personnel). Refer to operating instructions for complete directions for use indications, contraindications, warnings, cautions, and potential adverse events.

www.physio-control.com/LUCAS