

Case study

University of Rochester Medical Center Cardiac Intensive Care Unit (CICU)

Experience with the LUCAS® chest compression system in the hospital

Results*

- 1 Reduced time-to-ECMO to under 20 minutes.
- 2 Applied the LUCAS device within the first minute on six cases in a three-month period. ECMO started within 20 minutes and all patients survived.
- 3 Achieved (or reduced) LUCAS device application time to an average of six seconds with (or through) robust and frequent training.
- 4 Standardised the LUCAS device on applicable codes throughout the entire hospital.
- 5 Consistently improved team performance with focused training.
- 6 Saved almost \$500k in the last year after transitioning to their acute shock program.

* The University of Rochester Medical Center's results reflects the technology, policies, protocols and training implement by the hospital and the results are not necessarily representative of what another hospital may experience. Cost-savings may differ across regions due to different health systems, treatment plans and associated costs..

Background

Rochester Medical Center in New York, United States is a leader in innovative technologies with a strong focus on their education program. Traditionally performing manual CPR, the staff turned to mechanical chest compressions to help achieve their resuscitation goals. They now have nine LUCAS devices throughout their emergency department, cath lab and CICU.

With 22 beds in the CICU and a growing extracorporeal membrane oxygenation (ECMO) program, the hospital focused on high-quality, American Heart Association (AHA) Guidelines-consistent chest compressions. With goals to maintain consistent perfusion, limit the amount of staff in the room and reduce time-to-treatment for ECMO, the LUCAS device was their choice.

Overview

Industry

Hospital

Challenges

- Extended amount of time performing manual CPR
- Provide consistent perfusion
- Time-to-ECMO
- Number of staff in the room

Solution

- Mechanical CPR approach with guidelines-consistent, high-quality chest compressions with the LUCAS device
- Frequent training on LUCAS device use with new simulation protocol
- Smoother process with designated roles

Benefits

- Consistency
- Reduced workload for nurses/less staff needed
- Reduced hands-off chest time
- Bridge to ECMO, ventricular assist device placement, percutaneous coronary intervention or other intervention

Partner

Rochester Medical Center CICU,
New York, United States



“We have nine designated roles that are allowed in-room for a code, having the LUCAS device has allowed us to streamline and limit the number of people in the room. That’s two people that we can take out of the room and have that much more space at the bedside.”

- Lisa M. Owen, MS, RN, CCRN, ACCNS-AG
Acute shock program coordinator, ECMO specialist

Methods

Rochester knew they needed a clinical lead to support when and how to apply the LUCAS device, so they created an acute shock program to further educate their employees. Although they trained their entire extracorporeal cardiopulmonary resuscitation (ECPR) team on LUCAS device use and application, an acute shock resource nurse (ASRN) is responsible for bringing the device to the bedside.

Designating one ASRN guarantees someone trained and confident is nearby. To increase knowledge on LUCAS device use, they require bi-weekly hands-on training for CICU and bedside nurses. Specialised simulation training efforts, designated roles and defined protocols helped reach their goals.

Process

1. The CICU unit consists of post cardiac surgery, acute cardiogenic shock and advanced heart failure patients.
2. The LUCAS device is used as part of their ECPR program as a bridge to ECMO.

3. When a patient experiences cardiac arrest, an ASRN brings the LUCAS device, ECMO to-go bag, IO kit and i-STAT to the bedside.
4. An interdisciplinary team responds with the ASRN, advanced registered nurse practitioner, physician's assistant, medical doctor and respiratory therapist.
5. The ASRN directs LUCAS device application in a two-step process to eliminate breaks in CPR (Rochester's average application time is six seconds).
6. The team uses a defibrillator to deliver shocks if indicated within the first minute of arrest.
7. Within five to 10 minutes, they verify if the patient is in refractory ventricular fibrillation (VF) and requires ECMO.

"The LUCAS device allows us to do procedures while CPR continues. We can place lines, we can cannulate for ECMO—it's really been a help for that."

- Lisa M. Owen, MS, RN, CCRN,
ACCNS-AG Acute shock program
coordinator, ECMO specialist

8. If yes, they page the ECPR response and multidisciplinary teams and prepare the patient for ECMO.
9. Before simulation training, it took 45 minutes to get a patient on ECMO. Time to treatment is now down to 15 minutes (per a recent case).

Why Stryker?

A dynamic solution

Your fast-paced work environment demands speed, consistency and reliability. We strive to help emergency care teams around the world do what they do best—save lives.

Emphasis on efficiency

With Guidelines-consistent*, high-quality chest compressions and fewer interruptions than manual CPR, the LUCAS device delivers reliability until the job is done.

Support you can trust

An expert support team helps train your hospital on LUCAS device implementation and use.

* LUCAS device chest compressions consistent with European Resuscitation Counsel (ERC) and American Heart Association (AHA) Guidelines.



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Emergency Care

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