FAIRFIELD TOWNSHIP
RESOLUTION NO. 20-22

RESOLUTION AUTHORIZING THE PURCHASE OF TWO (2) LUCAS 3 CHEST COMPRESSION DEVICES AND ACCESSORIES FROM STRYKER FOR A TOTAL AMOUNT OF $27,856.50.

WHEREAS: The Fire Chief has recommended purchasing two LUCAS 3 Chest Compression Devices and accessories from Stryker; and

WHEREAS: The purchasing of such devices will contribute to the health, safety and welfare of the residents of Fairfield Township; and

WHEREAS: The total cost of the two LUCAS 3 Chest Compression Devices is $27,856.50 and will be purchased out of EMS Fund No. 2281;

NOW, THEREFORE, BE IT RESOLVED, by the Board of Trustees of Fairfield Township, Butler County, Ohio, as follows;

SECTION 1: The Board hereby authorizes the purchase of two (2) Lucas 3 Chest Compression Devices and accessories from Stryker, for a total cost of $27,856.50, as set forth on the attached Exhibit "A".

SECTION 2: The Board hereby dispenses with the requirement that this resolution be read on two separate days, pursuant to RC 504.10, and authorizes the adoption of this resolution upon its first reading.

SECTION 3 This resolution is the subject of the general authority granted to the Board of Trustees through the Ohio Revised Code and not the specific authority granted to the Board of Trustees through the status as a Limited Home Rule Township.

SECTION 4: That it is hereby found and determined that all formal actions of this Board concerning and relating to the passage of this Resolution were taken in meetings open to the public, in compliance with all legal requirements including §121.22 of the Ohio Revised Code.

SECTION 5: This resolution shall take effect at the earliest period allowed by law.

Adopted: January 8, 2020

Board of Trustees	**Vote of Trustees**
Shannon Hartkemeyer: Shannon Hartkemeyer	Yes
Joe McAbee: Joe McAbee	Yes
Susan Berding: Susan Berding	Yes

AUTHENTICATION

This is to certify that this is a resolution which was duly passed, and filed with the Fairfield Township Fiscal Officer this 8th day of January, 2020.

ATTEST: Shelly Schultz

Shelly Schultz, Fairfield Township Fiscal Officer

APPROVED AS TO FORM:

Lawrence E. Barbiere, Township Law Director

Chief Timothy J. Thomas Sr., OFE OFC
Fairfield Township Fire Department
6048 Morris Road
Hamilton, Ohio 54011
Phone 513-887-4402 – FAX 513-887-2705
www.FairfieldTwp.org

TO: **Administrator Vonderhaar**
Fairfield Township Board of Trustees

RE: Purchase of two(2) Lucas 3 Chest Compression Devices and Accessories.

I am formally requesting authorization to purchase these devices as a part of a group collaborative purchase. This device is highly recommended by our Medical Director and is quickly becoming the standard of care in the region.

Purchasing as a part of the group purchase will save us almost $2,000.00. The total cost for this is $27,856.50 for the two units and needed accessories. That would equip both front line Medic units with one.

I have attached an article that helps to explain the need for such a device in the pre-hospital medical care setting.

Here is a link to the Stryker Website which contains several videos and other information that you may find informative.

https://www.strykeremergencycare.com/products/devices/lucas-3/

This was included as a part of my 2020 budget request for 2281 – EMS.

If approved I would like purchase these in January of 2020 and would ask the vendor to extend the pricing until after the January 8, 2020 Board of Trustee's Meeting.

This is the equipment I spoke about at the December 11th meeting.

I would be happy to further discuss this in greater detail or provide any further data or information concerning this issue.

Chief Thomas

stryker

Fairfield Twp Lucas Group Purchase

Quote Number: 10061213
Version: 1
Prepared For: FAIRFIELD TOWNSHIP FIRE DEPT
Attn:

Remit to: P.O. Box 93308
Chicago, IL 60673-3308
Rep: Ross Finan
Email: ross.finan@stryker.com
Phone Number:

Quote Date: 10/08/2019
Expiration Date: 01/06/2020

Delivery Address		End User - Shipping - Billing		Bill To Account	
Name:	FAIRFIELD TOWNSHIP FIRE DEPT	Name:	FAIRFIELD TOWNSHIP FIRE DEPT	Name:	FAIRFIELD TOWNSHIP
Account #:	1266521	Account #:	1266521	Account #:	1271575
Address:	6048 MORRIS RD	Address:	6048 MORRIS RD	Address:	6032 MORRIS RD
	HAMILTON		HAMILTON		HAMILTON
	Ohio 45011		Ohio 45011		Ohio 45011

Equipment Products:

#	Product	Description	Qty	Sell Price	Total
1.0	99576-000063	LUCAS 3, v3.1 Chest Compression System INCLUDES HARD SHELL CASE, SLIM BACK PLATE, TWO (2) PATIENT STRAPS, (1) STABILIZATION STRAP, (2) SUCTION CUPS, (1) RECHARGEABLE BATTERY, AND INSTRUCTIONS FOR USE WITH EACH DEVICE.	2	$12,142.50	$24,285.00
2.0	11576-000060	LUCAS Desk-Top Battery Charger	2	$926.25	$1,852.50
3.0	11576-000071	LUCAS External Power Supply	2	$293.25	$586.50
4.0	11576-000080	LUCAS 3 Battery - Dark Grey - Rechargeable LiPo	2	$566.25	$1,132.50
			Equipment Total:		$27,856.50

Price Totals:

Grand Total:	$27,856.50

Prices: In effect for 60 days.

Terms: Net 30 Days

Ask your Stryker Sales Rep about our flexible financing options.

Stryker Medical - Accounts Receivable - accountsreceivable@stryker.com - PO BOX 93308 - Chicago, IL 60673-3308

stryker

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Phone Number:	

Quote Date:	10/08/2019
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AUTHORIZED CUSTOMER SIGNATURE

Deal Consummation: This is a quote and not a commitment. This quote is subject to final credit, pricing, and documentation approval. Legal documentation must be signed before your equipment can be delivered. Documentation will be provided upon completion of our review process and your selection of a payment schedule.

Confidentiality Notice: Recipient will not disclose to any third party the terms of this quote or any other information, including any pricing or discounts, offered to be provided by Stryker to Recipient in connection with this quote, without Stryker's prior written approval, except as may be requested by law or by lawful order of any applicable government agency.

Terms: Net 30 days. FOB origin. A copy of Stryker Medical's standard terms and conditions can be obtained by calling Stryker Medical's Customer Service at 1-800-Stryker.
In the event of any conflict between Stryker Medical's Standard Terms and Conditions and any other terms and conditions, as may be included in any purchase order or purchase contract, Stryker's terms and conditions shall govern.

Cancellation and Return Policy: In the event of damaged or defective shipments, please notify Stryker within 30 days and we will remedy the situation. Cancellation of orders must be received 30 days prior to the agreed upon delivery date. If the order is cancelled within the 30 day window, a fee of 25% of the total purchase order price and return shipping charges will apply.

The Risk *versus* Benefit of LUCAS

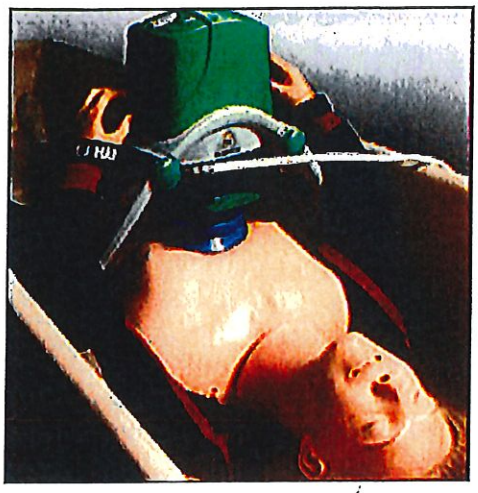
Is It Worth It?

Ralph J. Frascone, M.D., F.A.C.E.P.

THE well-written article by Deras *et al.*,[1] "Fatal Pancreatic Injury Due to Trauma After Successful Cardiopulmonary Resuscitation With Automatic Mechanical Chest Compression," presents an unfortunate case of a patient with resuscitated cardiac arrest who subsequently died with a pancreatic rupture presumably caused by the LUCAS™ Chest Compression System (Physio-Control, Redmond, WA).

There is a renewed focus on automated cardiopulmonary resuscitation (CPR) in the United States because it provides consistent rates and depths of CPR which have been felt to be crucial to optimize survival. Manual high-quality CPR can be difficult to train and to maintain for a very long time. The LUCAS™ device does more than just providing consistent, high-quality CPR works; it works by creating a positive intrathoracic pressure when the chest is compressed. This increased pressure is transmitted to the blood inside the heart. The blood then moves from the relatively high pressure inside the heart to the lower pressure of the systemic vasculature. Conversely, when the chest wall recoils, a small, but critical, negative pressure is created which draws blood back into the heart thereby creating preload. These alternating directional changes in intrathoracic pressure result in enhanced cardiac output, demonstrating that the compression and decompression phases of CPR are equally important.

A common problem during manual CPR is that the chest does not always recoil because of an increase in chest wall compliance (softens). Although other CPR devices provide consistent compression depth and rate, the LUCAS™ device, because of its integrated suction cup, is the only automated device that assists the decompression phase by drawing up on the chest and returning it to neutral.



"Although the case presented by Deras* et al. *is an extremely important reminder of the need to pay close attention throughout the cardiac arrest treatment cycle, it is important to remember this is a single case with an unfortunate outcome."

In a recently completed clinical trial, survival with a favorable neurologic outcome was higher in patients receiving manual active compression/decompression CPR with a suction cup device used with an impedance threshold device (ITD), compared with manual CPR. The manual suction cup device (ResQPUMP®, CardioPump®; Advanced Circulatory Systems, Inc., Roseville, MN) was used at a higher lifting force (–20 lbs) during the study compared with lifting force used by the LUCAS™ device (–3 lbs). The ITD is placed in the ventilatory circuit and prevents air from moving into the chest during the decompression phase. This allows for even greater negative intrathoracic pressure and thus greater preload. The rate of adverse chest and abdominal injuries between manual CPR and active compression/decompression CPR, in that study of more than 1,600 subjects, was similar.[2]

The literature is full of case reports and reviews of manual CPR–induced complications, including cardiac rupture, aortic and vena cava injuries, esophageal rupture, solid organ rupture, and multiple rib fractures.[3] However, there is a paucity of any sound methodological studies that compare the true complication rates of CPR methods. The best human study we have is the one referenced by Deras *et al.*, the authors concluded that the injuries seen with LUCAS™ appear to be of the same variety and incidence as those seen with manual CPR.[4] The only animal study in the literature actually showed fewer injuries caused by LUCAS™ than manual CPR in a swine model.[5]

Image: Alcor Life Extension Foundation.

Corresponding article on page 1038.

Accepted for publication December 18, 2013. From the Department of Emergency Medicine, University of Minnesota, Oakdale, Minnesota.

 Anesthesiology 2014; 120:797-8

As Deras *et al.* point out, no matter what type of CPR is performed, it is critically important that the compressions be applied in the proper anatomical location, and that the application requires consistent and careful monitoring. Even when performed correctly, the potential for complications from manual and automated CPR is real. However, it is important to keep in mind that these patients are already experiencing the ultimate complication, and we have an obligation to provide all individuals care that gives them the highest chance of survival. That risk *versus* benefit ratio is a key for readers to consider. To that end, although long-term outcome studies on the LUCAS™ and ITD have not been performed, animal data on the hemodynamic synergy of the two are compelling.[6,7] Using an ITD in combination with a LUCAS™ may be the next logical treatment strategy for patients experiencing sudden cardiac arrest. The LUCAS™ device does not fatigue or inadvertently interrupt compressions, and it provides a consistent depth and rate of chest compressions. Logistically, it frees up one provider to provide other care and it offers improved access to the patient. The patient can be safely moved and transported while undergoing CPR. Defibrillation can occur while the device is operating. There have been multiple cases of patients undergoing prolonged CPR with complete neurologic recovery, including one that occurred recently at our own institution (2 h and 45 min), without significant injuries to the patient's vasculature or internal organs. Our patient underwent percutaneous coronary intervention while LUCAS™ was operating and will be one of an upcoming 10-patient case series of similar patients undergoing prolonged CPR with LUCAS™. Very prolonged manual CPR and the use of manual CPR during percutaneous coronary intervention are obviously very difficult, if not impossible in most circumstances.

As the authors note, to date, there have been no studies that have shown an increased survival with LUCAS™. There can be many explanations for this. Perhaps, the decompression phase needs to be more consistent with true active compression/decompression CPR, that is, expand the lifting force beyond 3 lbs. Perhaps, rescuers are concentrating too much on the technology and not enough on performing high-quality CPR before placement of the device or, perhaps, they are interrupting CPR for too long during placement. The most physiological explanation might be that the outcome studies did not include an ITD. Adding an ITD to the respiratory circuit with automated ITD has been shown to result in significant increases in preload, cardiac output, coronary perfusion pressure, and cerebral flow in multiple animal studies.

Although the case presented by Deras *et al.* is an extremely important reminder of the need to pay close attention throughout the cardiac arrest treatment cycle, it is important to remember this is a single case with an unfortunate outcome. The LUCAS™ represents a significant improvement in performance of CPR for all of the reasons mentioned and we should not throw the baby out with the bath water. In other words, the risk *versus* benefit ratio is more than met with LUCAS™ and its use should be continued and broadened.

Competing Interests

The author is not supported by, nor maintains any financial interest in, any commercial activity that may be associated with the topic of this article.

Correspondence

Address correspondence to Dr. Frascone: ralph.j.frascone@healthpartners.com

References

1. Deras P, Manzanera J, Millet I, Charbit J, Capdevila X: Fatal pancreatic injury due to trauma after successful cardiopulmonary resuscitation with automatic mechanical chest compression. ANESTHESIOLOGY 2014; 120:1038–41
2. Aufderheide TP, Frascone RJ, Wayne MA, Mahoney BD, Swor RA, Domeier RM, Olinger ML, Holcomb RG, Tupper DE, Yannopoulos D, Lurie KG: Standard cardiopulmonary resuscitation *versus* active compression-decompression cardiopulmonary resuscitation with augmentation of negative intrathoracic pressure for out-of-hospital cardiac arrest: A randomised trial. Lancet 2011; 377:301–11
3. Krischer JP, Fine EG, Davis JH, Nagel EL: Complications of cardiac resuscitation. Chest 1987; 92:287–91
4. Smekal D, Johansson J, Huzevka T, Rubertsson S: No difference in autopsy detected injuries in cardiac arrest patients treated with manual chest compressions compared with mechanical compressions with the LUCAS device—A pilot study. Resuscitation 2009; 80:1104–7
5. Xanthos T, Pantazopoulos I, Roumelioti H, Lelovas P, Iacovidou N, Dontas I, Demestiha T, Spiliopoulou H: A comparison of autopsy detected injuries in a porcine model of cardiac arrest treated with either manual or mechanical chest compression. Eur J Emerg Med 2011; 18:108–10
6. Yannopoulos D, Matsuura T, Wayne M, Mahoney B, Frascone R, Fahey B, Lick C, Waytz J, Segal N: Evaluation of the hemodynamic synergy between an impedance threshold device and the LUCAS 2 automated CPR device in a pig model of cardiac arrest. Prehosp Emerg Care 2014; 18:131
7. Matsuura T, McKnite S, Metzger A, Yannopoulos D, Aufderheide TP, Lurie KG: An impedance threshold device combined with an automated active compression decompression CPR device (LUCAS) improves the chances for survival in pigs in cardiac arrest. Circulation 2008; 118:S1449–50

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