



Recent Changes in Indications for LUCAS Application & Use

Questions and Concerns (rev 2.14.2017)

We recognize that many System providers have questions and/or concerns regarding the recent changes in indications for LUCAS application and use. As we continue to evaluate local and national data on this topic, we wish to share information related to your questions and concerns. If you have clinical questions regarding this topic, please contact the OMD or email your question to TelleMSMD@austintexas.gov.

1. *Why was this change made so suddenly?*

Response: Though the decision appears to have been made suddenly, the time taken to review and attempt to address the LUCAS concerns has been substantial. Due to concerns about our community's overall cardiac arrest survival rate in the years preceding 2013, we conducted an extensive evaluation of our System's data to look for potential causes. This review spanned several years and included more than 2,000 cardiac arrest cases. Following this 2014 review, the System made improvements to training and pit crew procedures in an effort to improve cardiac arrest survival rates. Since our 2014 System evaluation, one European (Zeiner) and two U.S. publications (Youngquist) (Buckler) noted an association between mechanical CPR and a decreased likelihood of survival. Within a similar time frame, two European publications (Rubertsson) (Perkins) and one meta-analysis (Gates) demonstrated no significant improvement in survival with mechanical CPR compared to manual CPR but did not report a negative association with respect to outcomes. The most recent U.S. publication (Buckler) gained the OMD's attention in January 2017 due in large part to its size (80,000 patients). This article prompted an initial review of 2016 data within our System. Our initial findings were consistent with those of the two U.S. publications in which a negative association between outcome and mechanical CPR was noted. The above efforts led to the OMD's February 2017 decision to modify the indications for routine LUCAS application and use. This decision represents an ethically appropriate clinical practice change based on the available data on this topic.

2. *If use of the LUCAS is associated with worse outcomes for cardiac arrest patients, why is it still allowed for use during transport or when available staffing for resuscitation is inadequate?*

Response: In the past, cardiac arrest patients transported with ongoing CPR rarely survived to hospital discharge. This is likely due to the inability to perform effective chest compressions, adequate ventilations, and other resuscitation interventions. Pit crew has taught us the importance of having sufficient personnel to assist in resuscitation and the physical space to perform resuscitation efforts (limited space in the back of an ambulance). More importantly, we recognize the potential hazards to providers associated with performing chest compressions while unsecured in the back of a moving ambulance. For these reasons, LUCAS provides added safety to providers in the few cases in which transport with ongoing CPR is deemed necessary. Similarly,

insufficient personnel during the resuscitation makes it difficult to maintain effective chest compressions and ventilations which in turn decreases the likelihood of survival.

3. *Why is the LUCAS associated with worse outcomes in the two U.S. publications and in our System's data?*

Response: This is an excellent question. As of today, no one has yet been able to determine the specific reason or reasons. Variation in cardiac arrest resuscitation practices among Systems and individual providers makes it difficult to precisely determine such causes. The fact remains that no community has demonstrated improved survival when mechanical CPR is compared to manual CPR and a few communities have shown association between mechanical CPR and a decreased likelihood of survival.

4. *What specifically changed in the COGs as a result of Medical Directive 17-01?*

Response: Medical Directive 17-01 referred to two COGs that had changed relative to the indications for LUCAS application. With respect to Clinical Procedure CP-19, we published only the first page along with the Medical Directive because it was the only page that changed. The remaining pages of CP-19 did not change. Again, the only change relates to the indications for LUCAS application and use.

References

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