



PENNSYLVANIA EMERGENCY
HEALTH SERVICES COUNCIL
Your Voice In EMS

RECOMMENDATION FOR CONSIDERATION

Board Meeting Date: September 16, 2020

Subject: Exhaled Breath CO Analysis Devices

VTR#: 0920-01

Committee/Task Force: Medical Advisory

☒ Recommended Goal

☐ Recommended Policy Change

☐ Other:

Recommendation:

The Department of Health should amend the Scope of Practice for EMS Providers to permit the use of exhaled breath carbon monoxide analysis devices by providers above the level of EMR.

Rationale [Background]:

Current scope of practice related to prehospital assessment for carboxyhemoglobin is limited to pulse CO-oximetry devices. An alternative technology that performs an analysis on a patient's exhaled breath has received FDA approval for prehospital use. Although a new technology in prehospital care, its roots in healthcare that extends back to the 1970's.

Stewartⁱ, et al, when looking at the rapid estimation of carboxyhemoglobin in firefighters concluded, *"The analysis of expired breath with a portable electrochemical cell after carbon monoxide exposure provides a practical field method for the rapid estimation of carboxyhemoglobin..."*

Kurtⁱⁱ, et al, concluded, *"Breath measurement of carbon monoxide can be rapidly performed in the emergency department setting by a reliable method that closely approximates carboxyhemoglobin. This method is helpful in the immediate determination of CO exposure for individual patients, but could also serve as a valuable triage aid when large groups of patients are suspected of CO exposure..."*

The device is non-invasive, compact in size and easy to operate. Depending on the manufacturer, patient interface is accomplished using either a disposable mouthpiece or facemask. When using the disposable mouthpiece, some patient instruction is required to obtain an adequate sample.

If approved by the Department of Health, these devices would be available to an EMS agency when considering the optional purchase of a CO analysis device. Use of CO analysis is guided by current statewide BLS treatment protocol 150 and 227; the wording in both will require revision to include both CO-oximetry and exhaled breath analyzation.

Medical Review [Concerns]:

Although the MAC would have preferred more research in the prehospital setting, they recognize the technology driving the device is well established – just the practice environment is new.

Fiscal Concerns:

Exhaled breath devices, like other forms of CO analysis, are an optional purchase for an EMS agency. The price point for this device is estimated to be \$1,000- \$1,500 each.

Educational Concerns:

Like any piece of new technology, an agency purchasing this device will be responsible, through the agency medical director, to educate providers on its operations and indications for use, including cross-referencing the statewide treatment protocols related to suspected CO toxicity.

Plan of Implementation:

Following approval of this technology, the Department of Health should:

1. Update the Scope of Practice for EMS Providers for providers above the level of EMR to include exhaled breath CO analysis.
2. Update references in statewide BLS treatment protocols #150 and #227 to include both exhaled breath and CO-oximetry.
3. Issue an RC Memo and/or EMS Information Bulletin if deemed appropriate.

The PEHSC Committee/Task Force offers consultation to the Department in regard to the content of this Vote to Recommend (VTR) and its attached documents. The PEHSC Committee/Task Force specifically offers staff or member support to participate in Department deliberations regarding this recommendation in an effort to convey committee/task force discussions.

Board Meeting Comments/Concerns:

Signed: _____

Date 9/17/20

J. David Jones, President

For PEHSC Use Only – PA Department of Health Response

Accept: _____

Table: _____

Modify: _____

Reject: _____

Comments:

Date of Department Response: _____

References

ⁱ Stewart, Richard D. "Rapid Estimation of Carboxyhemoglobin Level in Fire Fighters." *JAMA: The Journal of the American Medical Association*, vol. 235, no. 4, 1976, p. 390., doi:10.1001/jama.1976.03260300016021.

ⁱⁱ Kurt TL, Anderson RJ, Reed WG. Rapid estimation of carboxyhemoglobin by breath sampling in an emergency setting. *Vet Hum Toxicol*. 1990;32(3):227-229.