

# Paramedic – Evidence Based Medicine (P-EBP) Program

## Paramedic CAT (Critically Appraised Topic) Worksheet

**Title:** Effectiveness of disposable ETCO2 devices in confirming A/W placement

**Report By:** Kirk Steeves

**2<sup>nd</sup> Party Appraiser:** Ed Cain and Jen Greene

**Clinical Scenario:** Currently NS and NB ground EMS units are stocked with disposable ETCO2 devices to assist with the confirmation of advanced airway placement. Currently, ACLS standards recommend the use of waveform capnography to confirm placement and effectiveness of treatments such as CPR. This is becoming the industry norm in hospitals etc.

**PICO (Population – Intervention – Comparison – Outcome) Question:**  
Post cardiac arrest patient airway confirmation utilizing a disposable ETCO2 device vs not using one to confirm ETT placement

**Search Strategy:** (out-of-hospital OR prehospital OR EMS OR emergency) AND (cardiac arrest OR cardiopulmonary resuscitation OR CPR) AND (colorimetric[title] OR end-tidal[title] OR 'co2 detector[title])

**Search Outcome:** 56 related articles

### Relevant Papers:

AUTHOR, DATE	POPULATION: SAMPLE CHARACTERISTICS	DESIGN (LOE)	OUTCOMES	RESULTS	STRENGTHS/ WEAKNESSES
Stephen R Hayden 1995	566 out of hospital arrests	III	Effective verification of airway placement	95.6% of intubations were associated with a color change	No comparison with use of no ETCO2 devices
Albert J Varon	110 patients requiring emergency intubation	III	Colorimetric ETCO2 detector is reliable and provides reassurance of correct ETT placement	The ETCO2 detector was 100% specific for correct endotracheal intubation in all patients	Does not indicate whether or not this is pre hospital or in hospital. Does not identify “down time” for patient, immediately

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					(witnessed) or delay( unwitnessed)

**Comments:**

Very positive, clearly indicating the colorimetric disposable devices are effective for confirming placement. Experienced the PICO drift as I began looking at the effectiveness of using these devices in a similar manner as waveform capnography to gauge the effectiveness of CPR

**Consider:** *Why would you NOT change practice, based on this article?*  
 Clearly proven to be effective with confirming A/W placement, cost effective method, combined with standard assessments such as visualization and auscultation

**Clinical Bottom Line:**

Continue to utilize the colorimetric disposable devices on EMS units in NS & NB

**References:**

Hayden SR, Sciammarella J, Viccellio P, Thode H, Delagi R., Colorimetric end-tidal CO2 detector for verification of endotracheal tube placement in out-of-hospital cardiac arrest. (1995); Acad Emerg Med: 2(6):499-502.

Varon AJ, Morrina J, Civetta JM., Clinical utility of a colorimetric end-tidal CO2 detector in cardiopulmonary resuscitation and emergency intubation.(1991); J. Clin Monit. 7(4):289-93.

