TITLE: Use of Bag-Valve Masks for Assisted Breathing in Pre-Hospital Settings: Clinical Effectiveness and Guidelines

DATE: 12 November 2015

RESEARCH QUESTIONS

1. What is the clinical effectiveness of a bag-valve mask operated by one care provider versus two care providers for patients in a pre-hospital setting?

2. What are the evidence-based guidelines regarding the appropriate use of bag-valve masks in the pre-hospital setting?

KEY FINDINGS

One evidence-based guideline was identified regarding the appropriate use of bag-valve masks in the pre-hospital setting.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD), Medline, Canadian and major international health technology agencies, as well as a focused Internet search. No methodological filters were applied to limit retrieval. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2010 and November 2, 2015. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.
Table 1: Selection Criteria

<table>
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<tr>
<th>Population</th>
<th>Patients in pre-hospital setting requiring assistance with breathing</th>
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| Intervention | Q1: Bag-valve mask operated by one care provider  
Q2: Bag-valve masks |
| Comparator  | Q1: Bag-valve mask operated by two care providers  
Q2: No comparator |
| Outcomes    | Comparative effectiveness;  
Clinical benefits (e.g., improved respiration, decreased mortality) and harms |
| Study Designs | Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines |

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One evidence-based guideline was identified regarding the appropriate use of bag-valve masks in the pre-hospital setting. No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or non-randomized studies were identified regarding the clinical effectiveness of a bag-valve mask operated by one care provider versus two care providers for patients in a pre-hospital setting.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

Two sections of the 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care relevant to the appropriate use of bag-valve masks in the pre-hospital setting were identified.\(^1,2\) For both adult and pediatric patients, it is recommended that bag-valve masks only be used during cardiopulmonary resuscitation when there are two trained healthcare providers available.\(^1,2\) One provider holds the mask securely to the face and the second operates the bag. When only one provider is available, the guideline recommends mouth-to-mouth or mouth-to-mask ventilation methods be used instead.\(^1,2\)
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials
No literature identified.

Non-Randomized Studies
No literature identified.

Guidelines and Recommendations

   See: Bag-Mask Ventilation, page S730

   See: Bag-Mask Ventilation (Healthcare Providers) and Two-Person Bag-Mask Ventilation, page S868
APPENDIX – FURTHER INFORMATION:

Non-Randomized Studies – Manikin Studies
