TITLE:  Hand Sanitizers for the Prevention of Infection Transmission: Comparative Clinical Effectiveness and Clinical Evidence

DATE:  08 August 2014

RESEARCH QUESTIONS

1. What is the comparative clinical effectiveness of alcohol-based foam versus alcohol-based gel hand sanitizers for the prevention of infection transmission from healthcare provider to patient?

2. What is the comparative clinical effectiveness of alcohol-based foam versus non-alcohol-based foam hand sanitizers for the prevention of infection transmission from healthcare provider to patient?

3. What is the clinical evidence regarding the volume of non-alcohol or alcohol-based hand sanitizers required to prevent infection transmission?

KEY FINDINGS

Five non-randomized studies were identified regarding either the alcohol-based foam versus alcohol-based gel hand sanitizers for the prevention of infection transmission from healthcare provider to patient or the volume of non-alcohol or alcohol-based hand sanitizers required to prevent infection transmission.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2014, Issue 7), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and non-randomized studies. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2009 and July 30, 2014. Internet links were provided, where available.

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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.

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 and non-randomized studies.

Five non-randomized studies were identified regarding either the alcohol-based foam versus alcohol-based gel hand sanitizers for the prevention of infection transmission from healthcare provider to patient or the volume of non-alcohol or alcohol-based hand sanitizers required to prevent infection transmission. No health technology assessments, systematic reviews, meta-analyses, or randomized controlled trials were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

Four non-randomized studies (NRS)\(^1\)\(^-\)\(^4\) assessed the volume of alcohol-based hand sanitizer (HS) required to prevent infection transmission while one non-randomized study\(^5\) examined the use of alcohol-based gel and liquid HSs for the prevention of infection transmission.

The authors of one NRS study\(^1\) indicated that the recommended alcohol HS volume of 1.1 mL was not enough to completely cover hands or achieve current American Society for Testing and Materials (ASTM) efficacy standards for the two gel-based HSs (70% and 85% ethanol concentration) and one foam-based HS (70% ethanol concentration) examined.\(^1\) The findings from another NRS suggested that doses from 2mL to more than 3mL of HS were required to ensure 30 seconds of contact\(^2\) while the results of a second NRS study\(^3\) suggested that HS volume should not fall below 3 mL. The results from the fourth NRS suggested that 1.6 g of ethanol foam (62% ethanol concentration) did not dry sufficiently in the 30 second rubbing period.\(^4\) This may lead to smaller volumes being applied in practice and thus not meeting the proper EN 1500 efficacy standards.\(^4\)

In terms of antibacterial efficacy, 99.9% bacterial reduction levels were obtained when using three alcohol-based products (liquid or gel) on health volunteers whose hands were contaminated with blood and Serratia marcescens.\(^5\)
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

Volume Studies


Efficacy Studies


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APPENDIX – FURTHER INFORMATION:

Randomized Controlled Trials


Acceptability Study - Liquid versus Gel Sanitizers


Non-Randomized Studies

Colonization Studies


Unspecified Sanitizer Type(s)

Relative-to-Patient Transmission


Non-Alcoholic Versus Alcoholic Gels


Guidelines and Recommendations