TITLE: Essential Oil Products for Disinfection: Clinical Effectiveness, Cost-Effectiveness, and Guidelines

DATE: 04 September 2014

RESEARCH QUESTIONS

1. What is the clinical effectiveness of essential oil products for the disinfection of skin or wounds?

2. What is the clinical effectiveness of essential oil products for the disinfection of hospital surfaces?

3. What is the cost-effectiveness of essential oil products for the disinfection of skin, wounds, or hospital surfaces?

4. What are the evidence-based guidelines regarding the use of essential oil products for the disinfection of skin wounds, or hospital surfaces?

KEY FINDINGS

No relevant literature was found regarding the clinical and cost-effectiveness of essential oil products for the disinfection of skin, wounds, or hospital surfaces.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2014, Issue 8), 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, non-randomized studies, economic studies, and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2009 and August 20, 2014. 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

Table 1: Selection Criteria	
Population	Patients being treated in hospital
Intervention	Essential oils (e.g., Thieves oil) for skin, wound, or surface disinfection
Comparator	Q1: other skin/wound disinfectants (e.g., chlorhexidine soap) Q2: other surface disinfectants (e.g., PerCept RTU, Accel PREVention RTU)
Outcomes	Effectiveness for the eradication of Methicillin-resistant Staphylococcus aureus (MRSA), Vancomycin-resistant Enterococci (VRE), Extended Spectrum Beta Lactamase (ESBL), prevention of infection transmission, cost-effectiveness, guidelines
Study Designs	Health technology assessment repots, systematic reviews, meta-analyses, randomized controlled trials, economic evaluations, 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, economic evaluations, and evidence-based guidelines.

No relevant health technology assessment reports, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, economic evaluations, or evidence-based guidelines regarding the clinical and cost-effectiveness of essential oil products for the disinfection of skin, wounds, or hospital surfaces were identified.

References of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

No relevant literature was found regarding the clinical and cost-effectiveness of essential oil products for the disinfection of skin, wounds, or hospital surfaces, therefore no summary can be provided.

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.

Economic Evaluations
No literature identified.

Guidelines and Recommendations
No literature identified.

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APPENDIX – FURTHER INFORMATION:

Randomized Controlled Trials – Alternate Comparator

1. Blackwood B, Thompson G, McMullan R, Stevenson M, Riley TV, Alderdice FA, et al. Tea tree oil (5%) body wash versus standard care (Johnson's Baby Softwash) to prevent colonization with methicillin-resistant Staphylococcus aureus in critically ill adults: a randomized controlled trial. J Antimicrob Chemother. 2013 May;68(5):1193-9. PubMed: PM23297395

Non-Randomized Studies – No Active Comparator

2. Edmondson M, Newall N, Carville K, Smith J, Riley TV, Carson CF. Uncontrolled, open-label, pilot study of tea tree (Melaleuca alternifolia) oil solution in the decolonisation of methicillin-resistant staphylococcus aureus positive wounds and its influence on wound healing. Int Wound J. 2011 Aug;8(4):375-84. PubMed: PM21564552

Economic Evaluation – No Active Comparator

3. LeFevre A, Shillcutt SD, Saha SK, Ahmed AS, Ahmed S, Chowdhury MA, et al. Cost-effectiveness of skin-barrier-enhancing emollients among preterm infants in Bangladesh. Bull World Health Organ. 2010 Feb;88(2):104-12. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2814477 PubMed: PM20428367

Review Articles

4. Wound management: tea tree oil. Adelaide (Australia): Joanna Briggs Institute; 2013. *Subscription required.*
See: Best Practice Recommendations, page 5

5. Warnke PH, Becker ST, Podschun R, Sivananthan S, Springer IN, Russo PA, et al. The battle against multi-resistant strains: Renaissance of antimicrobial essential oils as a promising force to fight hospital-acquired infections. J Craniomaxillofac Surg. 2009 Oct;37(7):392-7. PubMed: PM19473851

6. Fong D, Gaulin C, Lê ML, Shum M. Effectiveness of alternative antimicrobial agents for disinfection of hard surfaces [Internet]. Vancouver: National Collaborating Centre for Environmental Health; 2011 Sep [cited 2014 Sep 3]. Available from: http://www.ncceh.ca/sites/default/files/Alternative_Antimicrobial_Agents_Sept_2011.pdf Presentation at http://www.bccdc.ca/NR/rdonlyres/E9C003D1-E781-498B-9210-E3E6A623D96C/0/EHSeminarDec122011_Alternative_antimicrobial_agents.pdf.
See: Tea Tree Oil, page 4; Thyme Oil, page 5