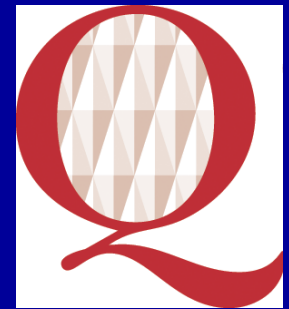


# Tea tree oil for preventing colonization with methicillin resistant *staphylococcus aureus* (MRSA): A Systematic Review



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## Supervisors

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# Background

- Colonization with MRSA is a risk factor in acquiring clinical infections (Von Eiff et al 2001).
- Emergence of resistance to the current treatment for MRSA colonization has the potential to cause major problems in its management (Cookson 1998).
- An alternative therapy to prevent MRSA colonization would be beneficial.

# Tea Tree Oil (TTO)

- TTO is known to eradicate MRSA.
- Many Laboratory studies have established that topical formulations can treat MRSA skin colonization
- Laboratory results are not always replicated in the clinical setting
- Only two clinical trials have been conducted

# Clinical Evidence

- A study by Caelli et al (2000) compared TTO 4% nasal ointment and a 5% body wash with nasal mupirocin and a triclosan body wash for MRSA decolonization. It was a small study n=30 (and 12 subjects failed to complete) and therefore was inadequately powered to detect a significant difference between treatments. However it showed no adverse events.

# Clinical Evidence

- Dryden et al (2004) compared nasal mupirocin and chlorhexidine body wash with TTO 10% nasal cream and 5% body wash. A larger study n=236 (12 lost to follow up) it showed no significant difference between treatments thus suggesting that TTO performs equally as well as standard treatment.
- Therefore if it works as a treatment would it work as a preventative agent?

# TTO as a preventative intervention

- Topical use is safe and adverse effects are minor and uncommon (Hammer et al 2006).
- Not currently part of therapeutic treatment armoury, therefore no threat of resistance to a current treatment
- The role of tea tree oil in the prevention of MRSA colonization is unknown.

# Aim

- To identify, critically appraise and synthesize the best current evidence on the efficacy of TTO in preventing colonization with MRSA.

# Objectives

- Primary objective of this review is to compare topical use of TTO vs. standard topical practice in preventing colonization with MRSA.
- Secondary objectives:
  - Length of preventative treatment
  - Strength of tea tree oil used
  - frequency of MRSA screening swabs
  - length of hospital stay
  - Adverse events

# Design

## Inclusion criteria

- Type of studies: RCTs or quasi RCTs
- Participants: Adults or children who were not colonized with MRSA.
- Intervention: Trials comparing TTO with any other standard treatment

# Search methods

- Cochrane Central Registrar of Controlled Trials [CENTRAL] (issue 4, 2008)
- Medline (1950 – Nov 2008)
- Embase (1980 – Nov 2008)
- ISI web of Science (up to Nov 2008)
- <http://clinicaltrials.gov/>
- [www.controlled-trials.com](http://www.controlled-trials.com)
- Expert in the field Prof T Riley
- No language or publication restrictions

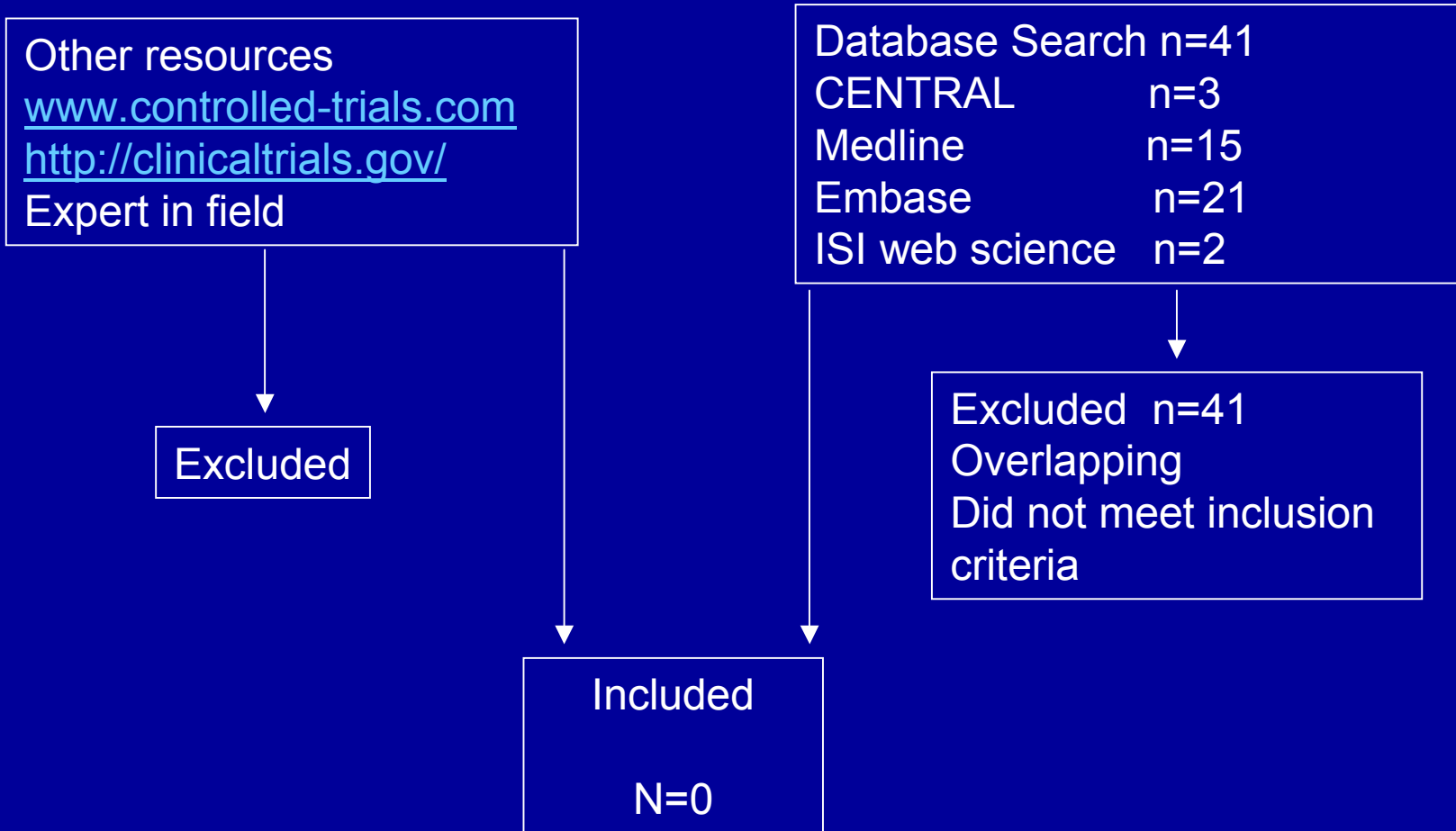
# Medline Search Terms

- # 1 MRSA. mp. [mp=title, original title, abstract, name of substance word, subject heading word]
- # 2 Methicillin resistant. Mp. [mp=title, original title, abstract, name of substance Word, subject heading word]
- # 3 Staphylococcus aureus. mp. [mp=title, original title, abstract, name of Substance word, subject heading word]
- # 4 Staphylococcal infections/ or staphylococcus aureus/ or methicillin resistant
- # 5 #1 or #2 or #3 or #4
- # 6 Anti-bacterial agents/ or skin colonization. mp.
- # 7 colonization. mp. [mp=title, original title, abstract, name of substance word, subject heading word]
- # 8 #6 or #7
- # 9 Tea tree oil. mp. or "Tea Tree Oil"/
- # 10 Melaleuca alternifolia. mp. or Melaleuca/
- # 11 #9 or #10
- # 12 #5 and #8 and #11

# Data collection & analysis plan

- Initial review of titles and abstracts to determine eligibility.
- Retrieval of full text studies for data extraction (2 independent reviewers).
- Assessment of study quality using Cochrane Collaborations tool for assessing risk of bias.
- If possible, meta analysis using review manager (RevMan 5.0)

# Results



# Results

- 41 studies were excluded. Reasons for exclusion: Either laboratory based studies or looked at eradication of MRSA colonization rather than prevention.
- In spite of laboratory and clinical evidence supporting the efficacy of tea tree oil in eradicating MRSA, this review failed to uncover evidence on its effectiveness in preventing colonization with MRSA.

# Implications

- Based on the findings of this review we are unable to make any recommendations for the use of TTO in preventing colonization with MRSA.
- Urgent need for RCTs to evaluate the role of tea tree oil in preventing MRSA colonization.
- Future trials should consider appropriate sample size with the power to detect differences.
- Careful elucidation of adverse effects and cost-effectiveness of the therapy.

Thank you

Any Questions?