

# A SYSTEMATIC REVIEW OF ECONOMIC OUTCOMES ASSOCIATED WITH USE OF TOPICAL INTERVENTIONS FOR TREATMENT OF CHRONIC WOUNDS

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## Objective

To examine the economic impact of topical interventions for chronic wounds and the variance associated with standard care.

## Background

A chronic wound is burdensome for patients, the healthcare system and wider society. These wounds can last for a long time, often in excess of a year. The prevalence of chronic wounds was estimated to be growing at the rate of 12% per annum in a study looking at 2000 patients in The Health Improvement Network database <sup>1</sup>.

With this increasing prevalence, the costs of wound care are also rising, an estimated £1.94 billion spent on Leg Ulcers in 2012/3 and in 2014/5 £1 billion spent on Diabetic Foot Ulcers in the United Kingdom <sup>2,3</sup>. Standard care for wounds varies depending on the type, however they include items such as dressings, debridement, infection control, compression and offloading, delivered by a multidisciplinary team of health care providers <sup>4,5</sup>.

## Methods

A systematic review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines undertaken.

Searches of: Science Direct, National Institute for Health and Clinical Excellence Evidence search, Medline (PubMed), Centre of Reviews and Dissemination (University of York), Cochrane Database and discussion with experts and manufacturers to identify additional literature. Two researchers performed data extraction, with a third consulted where there were disagreements.

Economic endpoints: incremental cost-effectiveness ratio, cost-per Quality Adjusted Life Year and disease related resource use.

A narrative synthesis of results and critical appraisal using the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) statement were performed.

Table 1: Inclusion /Exclusion criteria

Inclusion criteria	
Population	Chronic wounds
Interventions	Topical dressings or applications
Outcomes	Economic outcomes
Study design	RCT with economic evaluation. Any economic study or modelling
Language	English Language
Search dates	After 1987
Exclusion criteria	
Population	Paediatrics, Acute wounds (including Burns, Trauma, Surgery)
Interventions	Surgical. Novel non-surgical (including electrical stimulation, hyperbaric treatment. Infection control measures. Debridement. Bioengineered skin substitutes. Offloading
Outcomes	Not meeting inclusion criteria
Study design	In vitro studies, review or discussion articles
Language	Non-English language (if the abstract was available in English and enough data was available, this was included in the data extraction).
Search dates	Before 1987

## Results

After initial screening of the 3422 titles and abstracts, 2585 were excluded for not being relevant to the research objective. The remaining 817 texts were judged against the inclusion and exclusion criteria. Finally, 15 texts were included as per the PRISMA flow chart.

The studies predominantly examined VLU, with 10 studies focusing on these patients, 3 studies looked at DFU and one each for Chronic Wounds and Pressure Ulcers.

Across the 15 studies, standard care (or good wound care) was used 10 times, including where standard care was provided together with the study treatment.

Seven studies were set in the UK, of these standard care was used in 3, reporting a cost of standard care for DFU outpatient and inpatients, £3330 and £4488 respectively. For VLU, a mean annual cost of £1385.51 – £1795.30 per patient was reported.

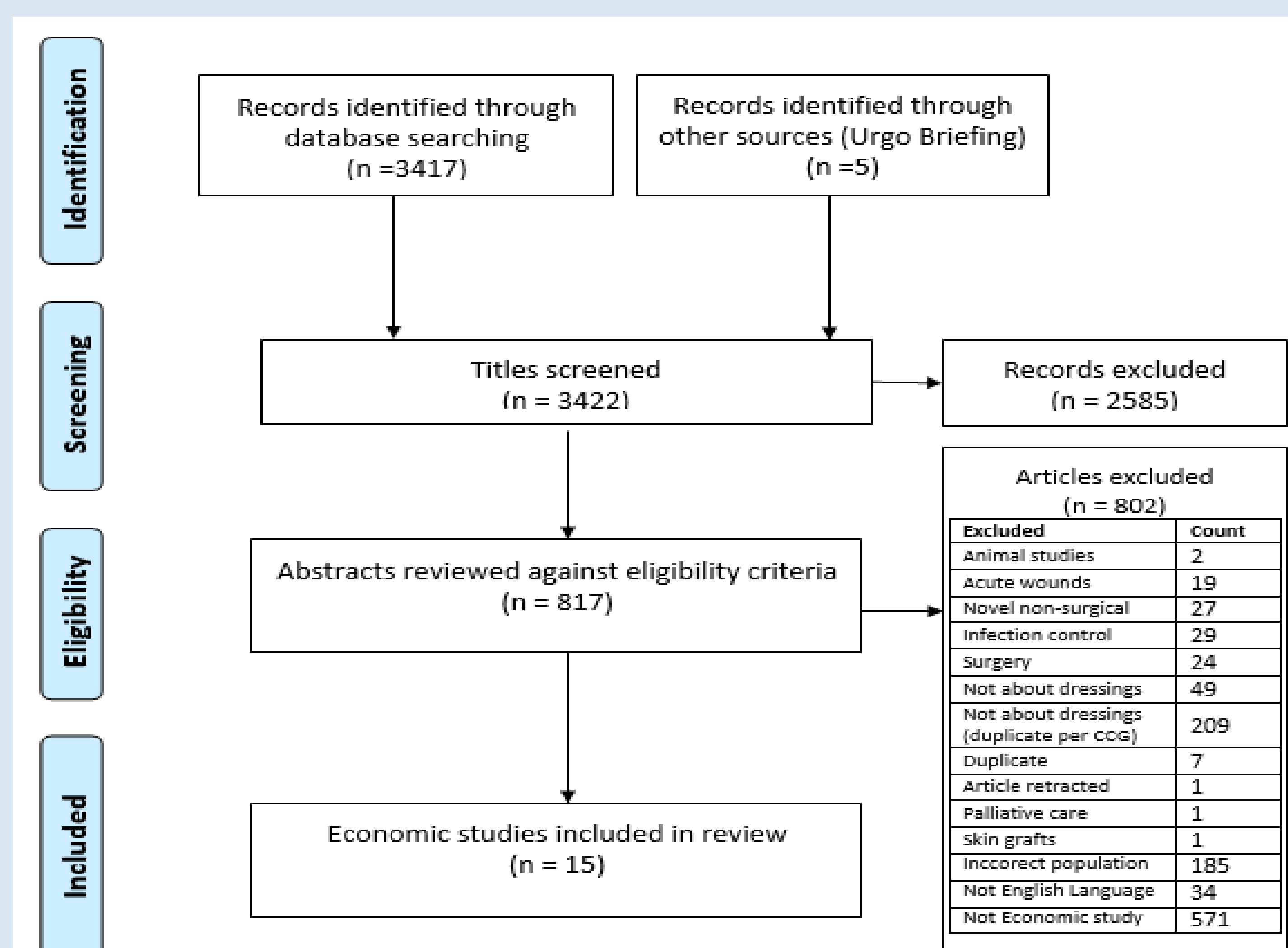


Figure 1. PRISMA flow diagram

## Conclusions

The methodological quality of the studies that were included in this review was assessed by use of the CHEERS statement. Of a maximum available 18 points awarded by the checklist a range of scores between 10-15 were awarded, with a mean of 12.9.

The treatment in question was cost-effective or cost-saving in 14 of the 15 studies. The exception; Chuang et al<sup>6</sup>, evaluated a randomized controlled trial of ultrasound therapy for hard-to-heal venous leg ulcers found no benefit and more expense associated with the ultrasound therapy.

In an environment of budget cuts and financial pressure on health care systems, cost-effective solutions to health care problems are desirable. Cost-effective interventions for wound care are not necessarily those that are the cheapest at the point of use, the use of the least costly interventions may not lead to the best possible healing outcomes for patients in terms of full closure, time to healing and risk of recurrence.

Improving healing outcomes would alleviate strain on the healthcare system, as long as the uncertainty surrounding evidence supporting new treatments can be balanced with high quality clinical trials supported by accurate economic modelling.

### References:

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