

ORIGINAL ARTICLE

The Cochrane Skin Group: a vanguard for developing and promoting evidence-based dermatology

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Abstract

Aim: The Cochrane Skin Group (CSG) is part of the international Cochrane Collaboration (<http://www.cochrane.org/>). The CSG prepares, maintains and disseminates high quality evidence-based summaries on the prevention, diagnosis and treatment of skin diseases. We present a synopsis of the history, scope and priorities of the CSG. In addition, we report outcomes of CSG reviews and critically assess clinical value.

Methods: Descriptive analysis of systematic reviews published by the CSG since its inception including output, impact factor, associated methodological studies, and influence in clinical guidelines, promoting patient and public engagement and in triggering new primary research.

Results: The CSG started in 1997, and has published 61 reviews, 34 protocols and 31 registered titles by August 2013. The CSG scope includes 1000 skin diseases; 80% of reviews cover the top ten diagnoses and 40% of reviews provide clear guidance for clinical practice. CSG reviews had an impact factor of 6.1 in 2011 which places it alongside top dermatology journals. CSG reviews are typically broad in focus and have been shown to be of better quality than non-Cochrane reviews. They are highly cited in clinical guidelines. Several reviews have identified evidence gaps that have led to better primary research.

Conclusions: The CSG has emerged as a vanguard of evidence-based dermatology by growing a community interested in applying best external evidence to the care of skin patients and by identifying topics for research. CSG reviews are high impact, clinically relevant and have tangibly influenced international dermatology clinical practice guidelines and new research.

Introduction

To celebrate the 20th anniversary of The Cochrane Collaboration, it would be remiss not to start by honoring the Collaboration's namesake: Professor Archie Cochrane. In 1979, Cochrane declared: "It is surely a great criticism of our profession that we have not organized a critical summary, by specialty or subspecialty, adapted periodically, of all relevant randomized control trials" (1). Professor Cochrane's bold declaration provided a new *raison d'être* for modern evidence-based medicine to integrate the best external evi-

dence in the care of individual patients according to specific areas of health such as skin diseases. Today, Cochrane systematic reviews have become a gold standard in informing evidence-based medicine. Cochrane Reviews have diversified beyond simple reviews of therapeutic interventions to also include reviews of the accuracy of diagnostic tests and other products such as overviews of families of related systematic reviews, accompanied by a body of cutting edge methodology needed to support these advances. Cochrane's legacy has had a profound impact on all medical specialties, including dermatology.

The Cochrane Skin Group: Origins, Scope, and Priorities

In 1992, Iain Chalmers published an editorial in *The British Medical Journal* advocating the need to get to grips with Archie's Cochrane agenda (1). One of the authors of the present article (HCW), a trainee in epidemiology at the time inspired by Chalmers' editorial wrote to him, supporting his call for summarizing systematically what was already known in dermatology. Chalmers' response was immediate, welcoming, and encouraging. As a result, a collection of people interested in evidence-based dermatology and systematic reviews gathered over the next four years until a critical mass formed, resulting in an exploratory meeting in 1996 with view to forming a Cochrane Skin Group (CSG). Preparation and engagement with a range of stakeholders including patients at that exploratory meeting was key, and the minutes are still posted on The Cochrane Collaboration website as an exemplar of how to get a group started. Iain Chalmers himself contributed to the meeting, along with his brother Robert Chalmers, a dermatologist who has been an active member of the CSG ever since.

On the 12 September 1997, the CSG officially registered with The Cochrane Collaboration. The CSG aims to disseminate evidence-based guidelines to prevent, diagnose, and treat dermatological disease. Over the last 16 years, the CSG has emerged as a vanguard of evidence-based dermatology and dermato-epidemiology on an international scale (2–4).

The CSG will review any aspect of skin disease management of value to professionals or to lay people with an interest in skin disease. The scope includes reviews ranging from life-threatening melanoma skin cancer, through around 1000 skin conditions, such as eczema, acne, and vitiligo, to areas that are considered by some to be simply cosmetic in nature, such as skin damage due to the sun.

Sometimes, other Cochrane groups also produce reviews relevant to dermatology due to the broad nature of our field. For example, the Cochrane Wounds Group has published reviews covering leg ulcers and treatments for scars such as keloids. A robust system is in place within The Cochrane Collaboration to ensure that all newly proposed titles for possible reviews are circulated to all groups, in order to initiate constructive dialogue between groups on how to avoid unintentional overlap and how a review of a multisystem disorder, such as systemic lupus, can be best supported.

In identifying and prioritizing topics for new reviews, the CSG considers the following: (i) the impact of the condition on people's lives (which may be psychological as well as physical); (ii) the knowledge gap in treating this condition; (iii) whether there any other good systematic reviews already on the subject; (iv) what a Cochrane Review would add to what is already known; (v) an assessment of the pace of the field and quality of the evidence on the subject; and

(vi) whether the topic is of current debate or public health importance.

The CSG's editorial process is rigorous and has previously been discussed in depth by Williams et al and Leonard, Delamere, and Murrell (2, 5).

Outcomes of the CSG

As of August 2013, the CSG has 61 reviews, 34 protocols, and 31 registered titles. We performed a citation analysis of all CSG papers published in *The Cochrane Library* using Google Scholar. Of the 61 reviews published to date (including updates), there are more than 2800 citations. Table 1 presents the top 12 cited CSG papers and their key findings (6–17). Since the inception of the CSG, nearly 800 authors have contributed to our reviews.

Impact

How do we measure the impact of the CSG?

One traditional metric is the Thomson Institute for Scientific Information's journal impact factor. The impact factor for the CSG has been steadily increasing in recent years. In 2010, it was 6.0 and in 2011, it was 6.1. To provide some context, the top journal in the field of dermatology, *The Journal of Investigative Dermatology*, had an impact factor of 6.3 in 2011. So, it appears, from an editorial standpoint, that the CSG is publishing papers that are highly cited in the dermatology field vis-à-vis other dermatology journals. Yet, the impact factor metric alone maybe an imprecise measure of actual clinical 'impact' on dermatology practice, as it does not measure quality or relevancy of articles (18, 19).

Is the CSG producing high-quality reviews?

A study by Collier et al in 2006 concluded that CSG reviews are of higher quality than non-Cochrane dermatology systematic reviews (20). The authors determined the methodological quality of Cochrane and non-Cochrane reviews, using the 10-item Oxman and Guyatt scale to assess quality (20). The study revealed that Cochrane Reviews were more likely than non-Cochrane reviews to include a comprehensive search strategy, minimize selection bias, and appropriately assess the validity of all included trials (20). Additionally, Cochrane Reviews more frequently included quality of life and adverse outcomes data compared to non-Cochrane reviews (20).

Since the central Cochrane Editorial Unit introduced the MECIR (Methodological Expectations of Cochrane Intervention Reviews) standards for conducting reviews in 2011, and for reporting reviews in late 2012, the CSG has been keen to encourage their use by authors. All members are aware of the new standards, and links to the expectations are in the

Table 1 Top 12 cited papers published by the Cochrane Skin Group in The Cochrane Library

| No. | Citations | Title | Year/Updated | Key recommendations/(Reference) |
|-----|-----------|---|----------------|--|
| 1 | 189 | Interventions for basal cell carcinoma of the skin | 2003/2007 | "Overall there has been very little good quality research on treatments for BCC. Most trials have only evaluated BCCs in low risk locations. Surgery and radiotherapy appear to be the most effective treatments with surgery showing the lowest failure rates. Although cosmetic outcomes appear good with PDT, long-term follow-up data are needed. Other treatments might have some use but few have been compared to surgery. An ongoing study comparing imiquimod to surgery should clarify whether imiquimod is a useful option." (6) |
| 2 | 121 | Minocycline for acne vulgaris | 2000/2003/2012 | "Minocycline is an effective treatment for moderate to moderately-severe inflammatory acne vulgaris, but there is still no evidence that it is superior to other commonly-used therapies. This review found no reliable evidence to justify the reinstatement of its first-line use, even though the price differential is less than it was 10 years ago. Concerns remain about its safety compared to other tetracyclines." (7) |
| 3 | 112 | Topical treatments for cutaneous warts | 2006/2012 | "Data from two new trials comparing SA and cryotherapy have allowed a better appraisal of their effectiveness. The evidence remains more consistent for SA, but only shows a modest therapeutic effect. Overall, trials comparing cryotherapy with placebo showed no significant difference in effectiveness, but the same was also true for trials comparing cryotherapy with SA. Only one trial showed cryotherapy to be better than both SA and placebo, and this was only for hand warts. Adverse effects, such as pain, blistering, and scarring, were not consistently reported but are probably more common with cryotherapy. None of the other reviewed treatments appeared safer or more effective than SA and cryotherapy. Two trials of clear duct tape demonstrated no advantage over placebo. Dinitrochlorobenzene (and possibly other similar contact sensitizers) may be useful for the treatment of refractory warts." (8) |
| 4 | 110 | Interventions for vitiligo | 2006/2010 | "This review has found some evidence from individual studies to support existing therapies for vitiligo, but the usefulness of the findings is limited by the different designs and outcome measurements and lack of quality of life measures. There is a need for follow-up studies to assess permanence of repigmentation as well as high-quality randomized trials using standardized measures and which also address quality of life." (9) |
| 5 | 108 | Topical treatments for fungal infections of the skin, nails, and foot | 2000/2007 | "Placebo-controlled trials of allylamines and azoles for athlete's foot consistently produce much higher percentages of cure than placebo. Allylamines cure slightly more infections than azoles and are now available OTC. Further research into the effectiveness of anti-fungal agents for nail infections is required." (10) |
| 6 | 106 | Interventions for impetigo | 2004/2012 | "There is good evidence that topical mupirocin and topical fusidic acid are equally, or more, effective than oral treatment. Due to the lack of studies in people with extensive impetigo, it is unclear if oral antibiotics are superior to topical antibiotics in this group. Fusidic acid and mupirocin are of similar efficacy. Penicillin was not as effective as most other antibiotics. There is a lack of evidence to support disinfection measures to manage impetigo." (11) |
| 7 | 101 | Probiotics for treating eczema | 2008 | "The evidence suggests that probiotics are not an effective treatment for eczema, and probiotic treatment carries a small risk of adverse events." (12) |
| 8 | 97 | Drugs for discoid lupus erythematosus | 2001/2009 | "Fluocinonide cream may be more effective than hydrocortisone in treating people with discoid lupus erythematosus. Hydroxychloroquine and acitretin appear to be of equal efficacy, although adverse effects are more frequent and more severe with acitretin. There is not enough reliable evidence about other drugs used to treat discoid lupus erythematosus." (13) |

Continued

Table 1 Continued

| No. | Citations | Title | Year/Updated | Key recommendations/(Reference) |
|-----|-----------|--|----------------|--|
| 9 | 89 | Interventions for bullous pemphigoid | 2003/2005/2010 | "Very potent topical steroids are effective and safe treatments for BP, but their use in extensive disease may be limited by side-effects and practical factors. Milder regimens (using lower doses of 10steroids) are safe and effective in moderate BP. Starting doses of prednisolone greater than 0.75 mg/kg/day do not give additional benefit, lower doses may be adequate to control disease and reduce the incidence and severity of adverse reactions. The effectiveness of adding plasma exchange, azathioprine or mycophenolatemofetil to corticosteroids, and combination treatment with tetracycline and nicotinamide needs further investigation." (14) |
| 10 | 85 | Interventions for rosacea | 2004/2005/2011 | "Although the majority of included studies were assessed as being at high or unclear risk of bias there was some evidence to support the effectiveness of topical metronidazole, azelaic acid, and doxycycline (40 mg) in the treatment of moderate to severe rosacea, and cyclosporine 0.5% ophthalmic emulsion for ocular rosacea. Further well-designed, adequately-powered randomized controlled trials are required." (15) |
| 11 | 85 | Interventions for pemphigus vulgaris and pemphigus foliaceus | 2009 | "There is inadequate information available at present to ascertain the optimal therapy for pemphigus vulgaris or pemphigus foliaceus. Further research is required, especially to assess the optimal glucocorticoid dose, the role of adjuvant immunosuppressive medications, and long-term adverse events to improve harm:benefit analyses." (16) |
| 12 | 81 | Interventions for alopecia areata | 2008 | "Few treatments for alopecia areata have been well evaluated in randomized trials. We found no RCTs on the use of diphencyprone, dinitrochlorobenzene, intralosomal corticosteroids or dithranol although they are commonly used for the treatment of alopecia areata. Similarly although topical steroids and minoxidil are widely prescribed and appear to be safe, there is no convincing evidence that they are beneficial in the long-term. Most trials have been reported poorly and are so small that any important clinical benefits are inconclusive. There is a desperate need for large well conducted studies that evaluate long-term effects of therapies on quality of life. Considering the possibility of spontaneous remission especially for those in the early stages of the disease, the options of not being treated therapeutically or, depending on individual preference wearing a wig may be alternative ways of dealing with this condition." (17) |

standard informative material that the CSG sends to all new authors.

Are CSG reviews relevant to clinical practice?

A common criticism of Cochrane Reviews is that they are long and complicated and commonly end up with a bottom line of 'insufficient evidence', which even if strictly true, most clinicians and patients find unhelpful. In 2004, Parker and colleagues sought to address the question "What's the point of databases of reviews in dermatology if all they compile is insufficient evidence" (21)? By assessing the number of reviews relevant to dermatology on *The Cochrane Library* at the time, and whether those reviews reported sufficient evidence to guide clinical decision-making (21). They found that 80% of reviews relevant to dermatology covered the top 10 diagnoses and that 40% of the reviews provided sufficient evidence to guide clinical practice (21).

Consistent with Parker et al, a study published in 2013 by Davila-Seijo, Batalla, and Garcia-Doval found that 'most of the systematic reviews published by the CSG provide useful information to improve clinical practice' (22). The authors performed a bibliometric analysis of all systematic reviews published by the CSG through August 2012. Their analysis graded 55 CSG reviews into three categories: 'Not useful in clinical practice: insufficient evidence to support or reject the use of an intervention', 'Useful: insufficient evidence to support or reject the use of an intervention, but sufficient evidence to support recommendations or suggestions', and 'Very useful: strong evidence to support or reject the use of an intervention' (22). They classified 25.5% (14/55) as not useful in clinical practice, 45.5% (25/55) as useful, and 29.1% (16/55) as very useful (22). Even when studies are not considered useful in clinical practice, when evidence is lacking, 'Cochrane reviews identify gaps in knowledge and help frame the future research agendas' (5). Nevertheless, it appears that the majority of systematic reviews published by the CSG provide useful information in guiding dermatology clinical practice (20, 22).

Is the CSG changing dermatology clinical practice and guidelines?

Table 2 presents five notable examples of CSG reviews that have influenced dermatology clinical practice and guidelines (14, 23–26). The CSG is having a tangible effect on international dermatological health policy including guideline contributions to the United Kingdom's National Institute for Health and Clinical Excellence and the National Health Service, the Scottish Intercollegiate Guidelines Network, the British Association for Dermatology and the American Association of Dermatology.

Additionally, the juxtaposition of the CSG alongside the UK Dermatology Clinical Trials Network (UKDCTN) at the Centre of Evidence Based Dermatology in Nottingham, UK, has led to new studies initiated by the UKDCTN on the basis of research gaps identified from CSG research. As an example, the current international clinical trial of tetracycline versus prednisolone for bullous pemphigoid arose from a Cochrane Review on this topic (27).

Dissemination of CSG reviews to the dermatology community and public: a need for partnerships

The CSG is keen to encourage dissemination of information about our reviews to ensure that it reaches a broad global audience of dermatologists, scientists, policy makers, and patients. Recently, the CSG initiated co-publishing agreements for publishing abridged versions of our reviews with two of the most widely read clinical dermatology journals: *The Journal of the American Academy of Dermatology* and *The British Journal of Dermatology*. Additionally, the CSG manages a website to disseminate research activities (www.skin.cochrane.org). We are also exploring increasing our social media presence as this is an emerging area to disseminate public health information (28). Opportunities may exist to increase our presence on Facebook and Twitter, as well as to provide author podcasts of recent CSG reviews (29).

The CSG is very interested in promoting patient advocacy and involves patients with skin diseases and their families (consumers). The majority of dermatological trials have focused on questions relevant to academic research and pharmaceutical companies, and these trials miss an important opportunity to seek patient's perspectives, especially with regard to nonpharmacological interventions such as education or specialized clothing. Patient perspectives on choice of appropriate outcomes, for example, are important, and increase awareness among researchers to improve interventions especially in areas such as adherence to medication and treatment satisfaction. About 100 active consumers are members of the CSG and are involved at many levels. Initially, the National Eczema Society and the Vitiligo Society of the UK provided the majority of our consumers. But, today, since we always include a relevant consumer in the peer-review process and often as a co-author on CSG reviews, many other patient advocates have joined the CSG.

The CSG is also active in developing global alliances. Currently, we have a satellite group in France and are initiating another in the United States. We are also interested in continuing to expand participation by individuals in low- and middle-income countries and to increase reviews on evidence-based dermatology guidelines relevant to resource-limited settings.

Table 2 Notable examples of Cochrane Skin Reviews that have influenced clinical practice and health policy

| CSG Title/reference | Influence on clinical practice and health policy |
|--|---|
| Interventions for bullous pemphigoid (14) | British Association of Dermatologists' guidelines for the management of bullous pemphigoid 2012. <i>Br J Dermatol</i> 2012; 167(6): 1200–14. |
| Topical treatments for chronic plaque psoriasis (23) | National Clinical Guideline Centre; National Institute for Health and Clinical Excellence. Psoriasis: assessment and management of psoriasis. London: National Clinical Guideline Centre, Royal College of Physicians; 2012. (NICE CG153). [Issued October 2012]. Available from URL: http://guidance.nice.org.uk |
| Interventions for non-metastatic squamous cell carcinoma of the skin (24) | NHS Evidence update of the NICE skin cancer guidelines: Williams HC, Bath-Hextall F, Dewar D, Kelly C, Lansbury L, Lear J, Newton-Bishop J, Schofield J. Improving outcomes for people with skin tumours including melanoma: Evidence Update October 2011. National Institute for Health and Clinical Excellence, October 2011. Available from URL: http://www.evidence.nhs.uk/topic/skin-cancer |
| Anti-streptococcal interventions for guttate and chronic plaque psoriasis (25) | Scottish Intercollegiate Guidelines Network (SIGN). Diagnosis and management of psoriasis and psoriatic arthritis in adults. Edinburgh: SIGN; 2010. (SIGN publication no. 121). [cited 12 Oct 2010]. Available from URL: http://www.sign.ac.uk |
| Safety of topical corticosteroids in pregnancy (26) | American Association of Dermatology guideline on treatments for pregnant women with psoriasis: Bae YS, Van Voorhees AS, Hsu S, Korman NJ, Lebwohl MG, Young M. Review of treatment options for psoriasis in pregnant or lactating women: from the Medical Board of the National Psoriasis Foundation. <i>J Am Acad Dermatol</i> 2012; 67(3): 459–77. |

Challenges, Opportunities, and Future Plans

Editorial process

Our process for registering a review title requires a new review team to include an experienced Cochrane author who has previously led a Cochrane Review, a methodologist or statistician, a content expert, a consumer, and an author with a good command of written English. This requirement has been in place for some years but has not been sufficient to ensure that all reviews progress to an acceptable standard within the agreed timelines. More recently, the CSG Editorial Base has introduced a categorization system where authors of submitted protocols (and subsequent reviews) are given an indication of whether their work is immediately acceptable to be sent to the referees or whether they need to make minor or major changes before it can be go to this step. If these requirements cannot be met at the protocol stage, this may be an indication the review team is not able to produce a quality review.

We would like to see the CSG become more selective with its content. To do this, it will be necessary to occasionally say 'no' to reviews that are not good enough—just as other journals turn down submissions.

Discourage reviews of limited focus and interest

The CSG has always steered authors away from very narrow topics of limited usefulness, and instead encouraged broader review titles, such as 'Interventions for ...' However, subsequent updates of these broad reviews can become too large and unmanageable for review authors, referees, the Editorial

Base, and readers. Updated reviews such as 'Interventions for vitiligo' grew from 19 included trials in 2007 to 57 trials in the 2010 update. The recently updated 'topical treatments for chronic plaque psoriasis' included 190 studies in the 2013 update. A challenge for the future is how to continue to produce reviews that assess broad topics in a manageable way.

Identifying priority topics

We wish to evolve the prioritization process to encourage reviews on areas that have significant human implications and financial costs to healthcare providers, as well as orphan diseases and those that represent current dilemmas. We want potential review teams to 'bid' for these priority titles, explaining why their team is best suited to complete the review to a high standard in a timely way.

Promote reviews of dermatology therapies of relevance to the developing world

Our group is also conscious of the need to cover skin conditions that commonly affect people in low- and middle-income countries as exemplified by our two reviews on cutaneous and mucocutaneous leishmaniasis (30, 31). One of which 'interventions for American cutaneous and mucocutaneous leishmaniasis' won the Pan American Health Organization prize in 2010, because of its relevance to the Health Agenda for the Americas as it addressed a neglected tropical disease.

We also wish to strengthen our global health collaborations with bodies such as the World Health Organization and the Institute for Health Metrics and Evaluation at the University of Washington (that produces the Global Burden of Disease Survey).

Conclusion

The CSG has been a key driver for promoting and producing evidence-based dermatology summaries over the last 13 years. CSG reviews are high impact, clinically relevant, and have tangibly influenced international dermatology clinical practice guidelines. Expanding into new areas of research including those relevant to the developing world, and increasing dissemination of our results via social media will be important future growth areas for the Group.

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