## 2010 Annual Evidence Update on Psoriasis

**Published:** 1 November 2010

Welcome to the fourth Annual Evidence Update on Psoriasis produced by NHS Evidence - skin disorders, with the results of a search for new guidelines and systematic reviews published or indexed since the last Annual Evidence Update in November 2009. There is also a "what's new" analysis, discussing the new evidence and its implications for clinical practice.

## 2010 Annual Evidence Update on Psoriasis - Introduction

**Introduction by Professor Hywel Williams (Clinical Lead) and Dr Douglas Grindlay (Information Specialist), NHS Evidence - skin disorders**

Welcome to the 2010 Annual Evidence Update on Psoriasis from NHS Evidence - skin disorders, our summary of important new evidence published or indexed over the least year since the 2009 Annual Evidence Update. Although NHS Evidence - skin disorders is aimed at healthcare professionals, we hope that many people who have psoriasis will also find some of the information of interest.
Our Annual Evidence Updates search for new evidence in the form of guidelines and systematic reviews. We use systematic reviews as our core evidence source for Annual Evidence Updates because of the well-known hazards in interpreting the results of single research studies (see, for example, Ioannidis 2005).
The citations we found have been listed under relevant headings in our Results section, with links to PubMed or free full text where available, should you wish to read more. At the end of the Results section we have provided a list of excluded references with our reasons for exclusion—usually because they lack a clear systematic review methodology.
If you care for patients with psoriasis, several new key resources emerged in the last year, including the BAD guidelines for biologic interventions for psoriasis. There is also a useful review of erythrodermic psoriasis and some interesting new information on the metabolic and cardiovascular associations of psoriasis, so there should be something in there to interest everyone.

Once again our colleagues Professor Christopher Griffiths and Dr Richard Warren from Salford Royal Foundation Hospital and the University of Manchester have kindly written our "what's new" commentary, and this year they are joined by Dr Amy Foulkes, who is currently at the Royal Victoria Infirmary, Newcastle upon Tyne, but will shortly be taking up an MRC Clinical Research Training Fellowship at Manchester. As usual, the aim of the commentary is to guide busy health professionals on what the evidence means for clinical practice.
NHS Evidence – skin disorders is involved in collecting and collating uncertainties about the effects of treatments for skin disorders, to be added to the UK Database of Uncertainties about the Effects of Treatments (DUETs). UK DUETs has been established to publish treatment uncertainties that cannot currently be answered reliably by referring to up-to-date systematic reviews of existing research evidence. These uncertainties can then be used to inform future research.
UK DUETs draws on three main sources to identify uncertainties about the effects of treatments:

- Patients', carers' and clinicians' questions about the effects of treatments;
- Research recommendations in reports of systematic reviews and clinical guidelines;
- Ongoing research, both systematic reviews in preparation and new 'primary' studies.

This year we are pleased to launch our initial collection of UK DUETs uncertainties on psoriasis treatments. We have worked through all the systematic reviews on psoriasis found in this and previous Annual Evidence Updates, to collect any treatment uncertainties that were identified.
DUETs is a work in process. If you have identified any uncertainties on psoriasis or other skin disorders—clinical questions that are not answered by existing systematic reviews, then do please let us know. You can contact us via our DUETs feedback form.
Finally, please note that the commentary from the 2009 Annual Evidence Update on Psoriasis has recently been published as a review paper in the journal Clinical and Experimental Dermatology, so do have a look if you want to read up on what we found last year (Link to PubMed abstract).

## 2010 Annual Evidence Update on Psoriasis - Results

A literature search was carried out to identify **new guidelines and systematic reviews** relating to psoriasis that have been published or indexed since the 2009 Annual Evidence Update on Psoriasis.
The result of this search is the **2010 Annual Evidence Update on Psoriasis** from NHS Evidence - skin disorders.

**Search period**
January 2009 was set as the limit for earliest publication date in this year's searches, to allow for any delays in indexing of citations in the bibliographic databases used (which might mean the citations were not found in the searches for the previous Annual Evidence Update in November 2009).
All the searches were carried out for the last time on 4th October, 2010.

**Sources Searched**
The following sources were searched:

- Ovid MEDLINE (using SIGN MEDLINE systematic review filter)
- Ovid EMBASE (using SIGN EMBASE systematic review filter)
- PubMed (using PubMed Clinical Queries systematic review filter)
- Cochrane Library
- NHS Evidence - skin disorders

All citations found in the searches were hand searched by reading the titles and abstracts to identify systematic reviews and potential systematic reviews relevant to atopic eczema. For all potential systematic reviews where there was still some doubt, the full texts were then read to ensure that they were indeed systematic reviews.
The definition of a systematic review from the Glossary of Cochrane Collaboration Terms on the Cochrane Collaboration website was used:
“A review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review. Statistical methods (meta-analysis) may or may not be used to analyse and summarise the results of the included studies.”

**RESULTS**
New guidelines and citations for new systematic reviews judged of direct relevance to the topic of psoriasis and its treatment are listed below, with the systematic reviews arranged by topic. Within each topic, the citations are presented in reverse chronological order, i.e. most recent first. Links to PubMed abstracts and full text, where available, are provided.
**Please note that the inclusion of citations in this list does not imply endorsement. NHS Evidence - skin disorders does not accept responsibility for the content or quality of included studies.**
A number of citations were identified as possible systematic reviews for the Annual Evidence Update in the initial sift of the search results, but were subsequently excluded on the grounds of a lack of a clear systematic review methodology or for other reasons. These citations are listed at the end of this page under the heading "Excluded references", with the reasons for exclusion.

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**UK Guidelines**
Ormerod AD, Campalani E, Goodfield MJ; BAD Clinical Standards Unit.
British Association of Dermatologists guidelines on the efficacy and use of acitretin in dermatology.
British Journal of Dermatology 2010 May;162(5):952-63.
Link to full text (PDF)

Clinical Knowledge Summaries (CKS).
Psoriasis (published 17 May 2010).
Link to full text

Smith CH, Anstey AV, Barker JN, Burden AD, Chalmers RJ, Chandler DA, Finlay AY, Griffiths CE, Jackson K, McHugh NJ, McKenna KE, Reynolds NJ, Ormerod AD; (Chair of Guideline Group).
British Association of Dermatologists' guidelines for biologic interventions for psoriasis 2009.
British Journal of Dermatology 2009 Nov;161(5):987-1019.
Link to full text (PDF)

British Dermatological Nursing Group (BDNG).
Biologics: setting up a biologics service for patients with psoriasis (published 19 November 2009)
Link to full text (Access for health professionals only – registration required).

**International Guidelines**

Menter A, Korman NJ, Elmets CA, Feldman SR, Gelfand JM, Gordon KB, Gottlieb A, Koo JY, Lebwohl M, Lim HW, Van Voorhees AS, Beutner KR, Bhushan R.
Guidelines of care for the management of psoriasis and psoriatic arthritis: Section 5. Guidelines of care for the treatment of psoriasis with phototherapy and photochemotherapy.
Journal of the American Academy of Dermatology 2010 Jan;62(1):114-35. Epub 2009 Oct 7.
Link to full text (PDF)

**Aetiology**

Simonart T, Heenen M, Lejeune O.
Epidermal kinetic alterations required to generate the psoriatic phenotype: a reappraisal.
Cell Proliferation 2010 Jun;43(3):321-5.
Link to PubMed abstract
*Note: MEDLINE, PubMed, and Current Contents searched.*

**Severity and outcome measures**

Augustin M, Ogilvie A.
Methods of outcomes measurement in nail psoriasis.
Dermatology 2010;221 Suppl 1:23-8. Epub 2010 Aug 9.
Link to PubMed abstract
*Note: PubMed, EMBASE, Cochrane Central Register of Controlled Trials (CENTRAL) and eight other databases searched.*

Puzenat E, Bronsard V, Prey S, Gourraud PA, Aractingi S, Bagot M, Cribier B, Joly P, Jullien D, Le Maitre M, Paul C, Richard-Lallemand MA, Ortonne JP, Aubin F.
What are the best outcome measures for assessing plaque psoriasis severity? A systematic review of the literature.
Journal of the European Academy of Dermatology and Venereology 2010 Apr;24 Suppl 2:10-6.
Link to PubMed abstract
*Note: Cochrane Library, PubMed and EMBASE searched.*

Bronsard V, Paul C, Prey S, Puzenat E, Gourraud PA, Aractingi S, Aubin F, Bagot M, Cribier B, Joly P, Jullien D, Le Maitre M, Richard-Lallemand MA, Ortonne JP.
What are the best outcome measures for assessing quality of life in plaque type psoriasis? A systematic review of the literature.
Journal of the European Academy of Dermatology and Venereology 2010 Apr;24 Suppl 2:17-22.
Link to PubMed abstract
*Note: Cochrane Library and PubMed searched.*

Spuls PI, Lecluse LL, Poulsen ML, Bos JD, Stern RS, Nijsten T.
How good are clinical severity and outcome measures for psoriasis?: quantitative evaluation in a systematic review.
Journal of Investigative Dermatology 2010 Apr;130(4):933-43. Epub 2009 Dec 31.
Link to PubMed abstract
*Note: MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials (CENTRAL) and DARE searched.*

**Co-morbidities**

Bremmer S, Van Voorhees AS, Hsu S, Korman NJ, Lebwohl MG, Young M, Bebo BF Jr, Blauvelt A; National Psoriasis Foundation.

Obesity and psoriasis: From the Medical Board of the National Psoriasis Foundation.
Journal of the American Academy of Dermatology 2010 Aug 6. [Epub ahead of print]
Link to PubMed abstract
*Note: MEDLINE and PubMed searched.*

Kwok T, Jing Loo W, Guenther L.
Psoriasis and multiple sclerosis: is there a link?
Journal of Cutaneous Medicine and Surgery 2010 Jul-Aug;14(4):151-5.
Link to PubMed abstract
*Note: MEDLINE, Cochrane Library, and EMBASE searched.*

Tobin AM, Veale DJ, Fitzgerald O, Rogers S, Collins P, O'Shea D, Kirby B.
Cardiovascular disease and risk factors in patients with psoriasis and psoriatic arthritis.
Journal of Rheumatology 2010 Jul;37(7):1386-94. Epub 2010 May 15.
Link to PubMed abstract
*Note: MEDLINE only searched.*

Prey S, Paul C, Bronsard V, Puzenat E, Gourraud PA, Aractingi S, Aubin F, Bagot M, Cribier B, Joly P, Jullien D, Le Maitre M, Richard-Lallemand MA, Ortonne JP.
Cardiovascular risk factors in patients with plaque psoriasis: a systematic review of epidemiological studies.
Journal of the European Academy of Dermatology and Venereology 2010 Apr;24 Suppl 2:23-30.
Link to PubMed abstract
*Note: MEDLINE, Cochrane Library, and EMBASE searched.*

Prey S, Paul C, Bronsard V, Puzenat E, Gourraud PA, Aractingi S, Aubin F, Bagot M, Cribier B, Joly P, Jullien D, Maitre ML, Richard-Lallemand MA, Ortonne JP.
Assessment of risk of psoriatic arthritis in patients with plaque psoriasis: a systematic review of the literature.
Journal of the European Academy of Dermatology and Venereology 2010 Apr;24 Suppl 2:31-5.
Link to PubMed abstract
*Note: PubMed, CochraneLibrary and EMBASE searched.*

**Erythrodermic psoriasis**

Rosenbach M, Hsu S, Korman NJ, Lebwohl MG, Young M, Bebo BF Jr, Van Voorhees AS; National Psoriasis Foundation Medical Board.
Treatment of erythrodermic psoriasis: from the medical board of the National Psoriasis Foundation.
Journal of the American Academy of Dermatology 2010 Apr;62(4):655-62. Epub 2009 Aug 8.
Link to PubMed abstract
*Note: MEDLINE only searched.*

**Therapies for psoriasis in specific patient groups**

de Jager ME, de Jong EM, van de Kerkhof PC, Seyger MM.
Efficacy and safety of treatments for childhood psoriasis: a systematic literature review.
Journal of the American Academy of Dermatology 2010 Jun;62(6):1013-30. Epub 2009 Nov 8.
Link to PubMed abstract
*Note: PubMed, EMBASE, and Cochrane Central Register of Controlled Trials (CENTRAL) searched.*

Frankel AJ, Van Voorhees AS, Hsu S, Korman NJ, Lebwohl MG, Bebo BF Jr, Gottlieb AB; National Psoriasis Foundation.
Treatment of psoriasis in patients with hepatitis C: from the Medical Board of the National Psoriasis Foundation.
Journal of the American Academy of Dermatology 2009 Dec;61(6):1044-55. Epub 2009 Oct 7.
Link to PubMed abstract
*Note: PubMed only searched.*

Menon K, Van Voorhees AS, Bebo BF Jr, Gladman DD, Hsu S, Kalb RE, Lebwohl MG, Strober BE; National Psoriasis Foundation.
Psoriasis in patients with HIV infection: from the medical board of the National Psoriasis Foundation.

Journal of the American Academy of Dermatology 2010 Feb;62(2):291-9. Epub 2009 Jul 31.
Link to PubMed abstract
*Note: MEDLINE only searched.*

**Topical corticosteroids**
Feldman SR, Yentzer BA.
Topical clobetasol propionate in the treatment of psoriasis: a review of newer formulations.
American Journal of Clinical Dermatology 2009;10(6):397-406.
Link to PubMed abstract
*Note: PubMed only searched.*

**Ciclosporin**
Robert N, Wong GW, Wright JM.
Effect of cyclosporine on blood pressure.
Cochrane Database of Systematic Reviews. 2010, Issue 1. Art. No.: CD007893.
Link to full text
*Note: Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE searched.*

**Biological therapies**
Poulin Y, Langley RG, Teixeira HD, Martel MJ, Cheung S.
Biologics in the treatment of psoriasis: clinical and economic overview.
Journal of Cutaneous Medicine and Surgery 2009 Sep-Oct;13 Suppl 2:S49-57.
Link to PubMed abstract
*Note: Uses two published meta-analyses combined with an updated MEDLINE search.*

Gospodarevskaya E, Picot J, Cooper K, Loveman E, Takeda A.
Ustekinumab for the treatment of moderate to severe psoriasis.
Health Technology Assessment 2009 Oct;13 Suppl 3:61-6.
Link to full text (PDF)
*Note: Summary of the evidence review group (ERG) report for submission to NICE.*

Turner D, Picot J, Cooper K, Loveman E.
Adalimumab for the treatment of psoriasis.
Health Technology Assessment 2009 Sep;13 Suppl 2:49-54.
Link to full text (PDF)
*Note: Summary of the evidence review group (ERG) report for submission to NICE.*

Borrás-Blasco J, Navarro-Ruiz A, Borrás C, Casterá E.
Adverse cutaneous reactions induced by TNF-alpha antagonist therapy.
Southern Medical Journal 2009 Nov;102(11):1133-40.
Link to PubMed abstract
*Note: PubMed, EMBASE, and MEDLINE searched.*

**Induction of psoriasis by biologic therapies**
Collamer AN, Battafarano DF.
Psoriatic skin lesions induced by tumor necrosis factor antagonist therapy: clinical features and possible immunopathogenesis.
Seminars in Arthritis and Rheumatism 2010 Jun 25. [Epub ahead of print]
Link to PubMed abstract
*Note: PubMed and MEDLINE searched.*

**EXCLUDED REFERENCES**
Beani JC, Jeanmougin M.
[Narrow-band UVB therapy in psoriasis vulgaris: good practice guideline and recommendations of the French Society of Photodermatology].
Annales de Dermatologie et de Venereologie 2010 Jan;137(1):21-31. Epub 2009 Dec 29.
Link to PubMed abstract
*Note: Full text in French, in journal not easily accessible to clinicians in the UK.*

Gowda S, Goldblum OM, McCall WV, Feldman SR.
Factors affecting sleep quality in patients with psoriasis.
Journal of the American Academy of Dermatology 2010 Jul;63(1):114-23. Epub 2009 Nov 26.
Link to PubMed abstract
*Note: Insufficient details of methodology.*

Maringer B., Zietemann V., Ratzinger G., Siebert U.
[Effectiveness of omega-3-fatty acids in psoriasis: A systematic review].
Aktuelle Ernahrungsmedizin 2009; 34(4):195-200.
(Not in PubMed)
*Note: Full text in German, in journal not easily accessible to clinicians in the UK.*

Mercuri SR, Naldi L.
Potential role of ustekinumab in the treatment of chronic plaque psoriasis.
Biologics 2010 May 25;4:119-29.
Link to full text
*Note: Insufficient details of methodology.*

Paul C, Gourraud PA, Bronsard V, Prey S, Puzenat E, Aractingi S, Aubin F, Bagot M, Cribier B, Joly P, Jullien D, Le Maitre M, Richard-Lallemand MA, Ortonne JP.
Evidence-based recommendations to assess psoriasis severity: systematic literature review and expert opinion of a panel of dermatologists.
Journal of the European Academy of Dermatology and Venereology 2010 Apr;24 Suppl 2:2-9.
Link to PubMed abstract
*Note: Expert opinion/consensus statement. The supporting systematic reviews published in the same journal supplement are referenced above in the main list.*

Reuter J, Merfort I, Schempp CM.
Botanicals in dermatology: an evidence-based review.
American Journal of Clinical Dermatology 2010;11(4):247-67.
Link to PubMed abstract
*Note: Only brief mention of psoriasis; complementary and alternative medicine for psoriasis was the specific topic of a review in last year's Annual Evidence Update.*

Rosmarin DM, Lebwohl M, Elewski BE, Gottlieb AB; National Psoriasis Foundation.
Cyclosporine and psoriasis: 2008 National Psoriasis Foundation Consensus Conference.
Journal of the American Academy of Dermatology 2010 May;62(5):838-53. Epub 2009 Nov 24.
Link to PubMed abstract
*Note: Consensus statement with no indication of systematic review methodology.*

Uhlenhake EE, Feldman SR.
Efficacy and safety of ustekinumab and etanercept for the treatment of psoriasis.
Expert Opinion on Biological Therapy 2010 Jul;10(7):1105-12.
Link to PubMed abstract
*Note: No methodology given.*

## 2010 Annual Evidence Update on Psoriasis - Commentary

**"What's new?" - An analysis of the clinical significance of new guidelines and systematic reviews found in the 2010 Annual Evidence Update on Psoriasis**
*Dr Amy Foulkes, Department of Dermatology, Royal Victoria Infirmary, Newcastle upon Tyne, and Professor Christopher EM Griffiths and Dr Richard B Warren, The Dermatology Centre, Salford Royal Hospital, University of Manchester, Manchester Academic Health Science Centre*

**UK guidelines**
In November 2009 the British Association of Dermatologists (BAD) published guidelines for biologic interventions for psoriasis (Link to full text, PDF). This important summary of evidence superceded the

2005 BAD guidance on this topic, discussing the substantial body of new evidence relating to the clinical use of these treatments. The guideline serves as an excellent resource for information on the initiation and use of biological therapies in a variety of clinical scenarios, e.g. relevant screening, surgery, chronic viral infections, and use in pregnancy. Key points of the guidelines pertain to the use of ustekinumab and infliximab. As there are currently less long-term safety data available for ustekinumab, it is currently suggested as a second line agent. In addition, infliximab's use can be considered at the same level of severity of psoriasis as the other available biologics, whereas with NICE guidance the PASI and DLQI are required to be at least 20 and 18 respectively [1].
Subsequently, in May 2010 the BAD published guidelines on the efficacy and use of acitretin, a synthetic retinoid, in dermatology (Link to full text, PDF). Already a popular second-line systemic agent in the treatment of severe psoriasis, the guidelines reviewed evidence in all dermatological disease. Amonst other diseases, the guidance recommended acitretin monotherapy in the treatment of severe psoriasis and palmoplantar pustulosis. Preliminary investigations prior to starting acitretin were summarised, and a detailed monitoring process was provided, including liver enzyme testing every 2-4 weeks for the first two months, and thereafter every three months.
Clinical Knowledge Summaries (CKS, formerly PRODIGY) are a source of evidence-based information and practical 'know how' about the common conditions managed in primary care, particularly aimed at healthcare professionals working in primary and first-contact care. A new CKS Psoriasis topic was published in May 2010 (Link to full text) and is a thorough resource that will prove useful to both patients and healthcare professionals. Included is a detailed, referenced disease section with links to the supporting evidence and clinical photographs, and a lay summary (which can also be viewed as a patient information leaflet).

**International guidelines**
The American Academy of Dermatology (AAD) has this year produced the penultimate section of a six-part series of guidelines on psoriasis and psoriatic arthritis, this section dealing with phototherapy (Link to full text, PDF). The extensive review of literature is summarised with prescriptive protocols in tables of recommendations. However, unfortunately these do not reference essential dosimetry and calibration, in comparison to the 2002 British Photodermatology Group's guidelines for dosimetry and calibration in ultraviolet radiation therapy [2].

**Aetiology**
Although there have been major advances in understanding the immunopathogenesis of psoriasis, the complex interplay between keratinocytes and immune cells in development of plaques is poorly understood. In a 2010 systematic review found in our Annual Evidence Update, Simonart *et al*. (Link to PubMed abstract) explored mathematical models specifically dedicated to kinetics of epidermal keratinocytes in psoriasis. Although an interesting approach, it is difficult to know what role such mathematical modelling will have on furthering our understanding of the aetiology of psoriasis.

**Severity and outcome measures**
Nail involvement is a common feature of psoriasis, occurring in 10-55% of patients. Augustin & Ogilvie (Link to PubMed abstract) examined clinical outcome measurements in nail psoriasis and suggested a need for accurate and scientifically sound evaluation of the severity of nail psoriasis in trials and clinical practice.
In a 2010 supplement in the *Journal of the European Academy of Dermatology and Venereology*, Puzenat *et al*. (Link to PubMed abstract) carried out a systematic review of the best outcome measures for assessing plaque psoriasis severity. This suggested that whilst none of the severity scores used for psoriasis met all the validation criteria required for an ideal score, the PASI is the most extensively studied psoriasis clinical severity score and the most thoroughly validated according to methodological criteria. Unless new methods of evaluation are trialled, then the failings of the PASI, such as lack of sensitivity at the lower end of the range, will continue to exist in clinical trials.
In the same supplement, the same criteria were used by Bronsard *et al*. (Link to PubMed abstract) to assess outcome measures of quality of life in plaque psoriasis. The Dermatology Life Quality Index (DLQI) was concluded to be the easiest for use in clinical practice, due to its brevity and simplicity.
Also in this supplement, Spuls *et al*. (Link to PubMed abstract) investigated clinical measures of psoriasis used in clinical trials and daily practice, and concluded that there are no adequately validated clinical measures of psoriasis. They suggested that different measures might be best suited for specific situations and further validation studies should be conducted to complete the overview of their clinimetric properties.

**Comorbidities**
Mounting evidence for an association between cardiovascular disease and severe psoriasis was detected from a review of 14 studies on this topic by Tobin *et al*. (Link to PubMed abstract), concluding 'substantial' increased risk of cardiovascular disease in patients who have both psoriasis and psoriatic arthritis. An increased risk of both obesity and metabolic syndrome was found by Prey *et al*. in their review of 18 cross-sectional case-control studies of patients with solely plaque-type psoriasis (Link to PubMed abstract). Further to this, Bremmer *et al*. (Link to PubMed abstract) published a review on obesity and psoriasis, concluding that the amount of category I evidence (that obtained from at least one correctly designed randomised controlled trial) for objectively determining the best treatment choices for obese patients with psoriasis was scarce, considering the relative risk associated with therapeutic options in those with obesity as a comorbidity.
An investigation of the prevalence of psoriasis in multiple sclerosis by Kwok *et al*. (Link to PubMed abstract) found conflicting data from an evaluation of 19 articles. Despite the previous hypothesis that these diseases may be associated due to common immunopathogenic factors such as the dysregulation of the T-helper 17 cell (Th17) pathway, it was concluded that an association could not be established from published literature.
Estimates of the prevalence of psoriatic arthritis (PsA) among psoriasis patients vary widely, in the range 5-40% [3]. The time to development of PsA in patients with plaque psoriasis also remains unclear. A review of eight epidemiological studies by Prey *et al*. (Link to PubMed abstract) suggested a prevalence of 7- 26% on examination of rheumatologically-validated criteria.

**Erythrodermic psoriasis**
Overall, there are few evidence-based data to guide clinicians in managing the challenge of erythrodermic psoriasis. A useful review on this topic by Rosenbach *et al*. (Link to PubMed abstract) evaluated the therapeutic options available but suggested that the paucity of high-quality scientific data reflected a need for dedicated clinical trials. However, it should be noted that the authors only searched PubMed, so some trials might have been missed, for example in the EMBASE database. The findings agreed with the BAD Biologics guidelines that anti-TNF alpha agents could be considered on the basis of published case series, whilst ustekinumab has yet to be evaluated in this situation.

**Therapies for psoriasis in specific patient groups**
An algorithm for treatment of childhood psoriasis has been produced by de Jager *et al*. on the basis of a systematic review (Link to PubMed abstract): first, calcipotriol with/without topical corticosteroids, followed by dithranol, with methotrexate considered to be the systemic treatment of choice. The data showed a diverse spectrum of therapeutic options, but mainly concerned induction of remission, rather than maintenance therapy.
A frequently encountered clinical problem is that of treatment of refractory psoriasis in patients with liver impairment. A review of treatment of psoriasis in patients with hepatitis C was carried out by Frankel *et al*. in 2009 (Link to PubMed abstract). The editorial to this work sought to allay some fears surrounding the use of ciclosporin (CyA) in this group of patients, commenting that further investigations of safety are advisable, but available data indicate that CyA can contribute to a good outcome in patients affected by psoriasis and concomitant HCV, in terms of both safety and efficacy. The subject of hepatitis C has particular concern as interferon alpha, a standard treatment, can trigger or worsen pre-existing psoriasis. In general, acitretin, PUVA and anti-TNF alpha agents were suggested as second-line agents.
Further to the above review of blood-borne virus in psoriasis, concomitant HIV infection has also been considered in a 2009 systematic review by Menon *et al*. (Link to PubMed abstract). Many of the systemic treatments for psoriasis are immunosuppressive and potentially can lead to severe complications in the setting of HIV infection. Acitretin was proposed as a safe second-line agent. Of interest, biological therapies have been used in case series of patients with both HIV and rheumatoid arthritis with some success. The authors reinforced that this approach should be reserved for those with debilitating disease and should remain a joint management decision with specialists in infectious diseases.

**Topical corticosteroids**
Feldman & Yentzer (Link to PubMed abstract) published a review comparing newer formulation, very potent topical steroid (clobetasol proprionate 0.05%) with traditional formulations. Some of the preparations discussed are USA-based and unfamiliar to UK clinicians. Although the concept of comparing vehicles was of some interest, the paper’s conclusions suggested pharmaceutical

influence and failed to discuss the overall place of ultra-potent topical steroid use in chronic plaque psoriasis—an issue where the risk benefit profile remains unclear, with differing views in the UK and USA.

**Ciclosporin (CyA)**
The Cochrane Hypertension Group has published a review of the effect of CyA on blood pressure (Link to full text) and concluded that its use significantly increases blood pressure compared to placebo in a dose-related fashion. It was suggested that this is of particular clinical significance in psoriasis, where cardiovascular risk is thought to be increased. The summary confirms previous findings and the risk is discussed in the 2010 updated British Association of Dermatologists' ciclosporin patient information leaflet (Link).

**Biological therapies**
There are three new systematic reviews on the use of biologic therapies for the treatment of psoriasis included in this year's Annual Evidence Update.
A 2009 study from Poulin *et al*. (Link to PubMed abstract) focused on economic factors in the use of biologic agents. The pharamacoeconomic analyses discussed had numerous limitations, as they did not take into account drug toxicity and long-term efficacy.
Gospodarevskaya *et al*. were the authors of a summary of the Evidence Review Group (ERG) report for NICE on the use of ustekinumab to treat moderate to severe psoriasis (Link to full text, PDF). NICE guidance issued as a result stated that ustekinumab is recommended as a treatment option for adults with severe plaque psoriasis (PASI >= 10; DLQI >= 10) unresponsive to standard systemic therapy [4].
Turner *et al*. produced a similar summary of the ERG report on adalimumab (Link to full text, PDF). The resulting NICE guidance recommended adalimumab as a treatment option for adults with severe plaque psoriasis (PASI >= 10; DLQI >=10) unresponsive to standard systemic therapy [5].

**Cutaneous adverse reactions with biologic therapies**
While the induction and exacerbation of psoriasis by anti-TNF alpha agents was discussed by systematic reviews included in the 2008 and 2009 Annual Evidence updates, an update of cases has been published by Collamer & Battafarano in a 2010 paper (Link to PubMed abstract). In addition to new-onset psoriasis, the wide variety of other cutaneous adverse reactions seen in patients treated with anti-TNF alpha therapy was reviewed by Borrás-Blasco *et al*. (Link to PubMed abstract).

**ADDITIONAL REFERENCES**
1. National Institute for Health and Clinical Excellence (NICE). Infliximab for the treatment of adults with psoriasis. London: NICE, January 2008.
Link to full text
2. Taylor DK, Anstey AV, Coleman AJ, Diffey BL, Farr PM, Ferguson J, Ibbotson S, Langmack K, Lloyd JJ, McCann P, Martin CJ, Menagé Hdu P, Moseley H, Murphy G, Pye SD, Rhodes LE, Rogers S; British Photodermatology Group. Guidelines for dosimetry and calibration in ultraviolet radiation therapy: a report of a British Photodermatology Group workshop. British Journal of Dermatology 2002;146(5):755-63.
Link to full text (PDF)
3. Christophers E, Barker JN, Griffiths CE, Daudén E, Milligan G, Molta C, Sato R, Boggs R. The risk of psoriatic arthritis remains constant following initial diagnosis of psoriasis among patients seen in European dermatology clinics. Journal of the European Academy of Dermatology and Venereology 2010;24(5):548-54.
Link to Pubmed abstract
4. National Institute for Health and Clinical Excellence (NICE). Ustekinumab for the treatment of adults with moderate to severe psoriasis. London: NICE, September 2009.
Link to full text
5. National Institute for Health and Clinical Excellence (NICE). Adalimumab for the treatment of adults with psoriasis. London: NICE, June 2008.
Link to full text

**New! UK DUETs uncertainties on psoriasis treatments**

# 2010 Annual Evidence Update on Psoriasis - Methodology

A literature search was carried out to identify new guidelines and systematic reviews relating to psoriasis and its treatment that have been published or indexed since the 2009 Annual Evidence Update on Psoriasis. The results are the **2010 Annual Evidence Update on Psoriasis** from NHS Evidence - skin disorders.
This webpage describes the search strategies used and the criteria for inclusion in the Annual Evidence Update.

## Search period

The search for the 2010 Annual Evidence Update on Psoriasis was for citations published or indexed in 2009 or 2010 and not included in the 2009 Annual Evidence Update.
January 2009 was set as the limit for earliest publication date in most of the searches, to allow for any delays in indexing of citations in the bibliographic databases used (which might mean the citations were not found in the searches for the previous Annual Evidence Update in November 2009).
In the case of PubMed, the search was refined by searching for records *indexed* in the PubMed database in 2009 and 2010 (using the "edat" command), which would find any citations published before 2009 but indexed late and hence not found in last year's search.
All the searches were carried out for the last time on 13 October, 2010.

## Sources Searched

The following sources were searched:
Ovid MEDLINE (using SIGN MEDLINE systematic review filter)
Ovid EMBASE (using SIGN EMBASE systematic review filter)
PubMed (using PubMed Clinical Queries systematic review filter)
Cochrane Library
NHS Evidence - skin disorders

The search of PubMed was carried out as an insurance to ensure that no systematic reviews were missed using MEDLINE and EMBASE, especially as PubMed tends to be more up to date and so is better for finding new citations.
The search of the Cochrane Library was also carried out as an insurance, to find relevant citations in the Cochrane Database of Systematic Reviews, the Database of Abstracts of Reviews of Effects (DARE) and the Health Technology Assessment Database. The intention was to confirm that nothing of relevance was missed in the searches of MEDLINE, EMBASE and PubMed.
The search of NHS Evidence - skin disorders was done to find new guidelines and also gave a confirmatory search for new Cochrane Reviews and DARE abstracts.

## Systematic review filters

The SIGN systematic review filters developed for Ovid implementations of MEDLINE and EMBASE were used as they provide a reasonable balance between specificity and sensitivity. Details of the SIGN systematic review filters can be found on the following webpage:
http://www.sign.ac.uk/methodology/filters.html

Details of the PubMed Clinical Queries systematic review filter and its validation can be found via the following links:
http://www.nlm.nih.gov/bsd/pubmed_subsets/sysreviews_strategy.html
http://www.nlm.nih.gov/bsd/pubmed_subsets/sysreviews_sources.html

## Search Strategies

The search term "psoria*" was chosen to find citatations that referenced "psoriasis", "psoriatic" and "psoriaform".

SIGN MEDLINE systematic review filter

Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations & Ovid MEDLINES
1. Meta-Analysis/
2. meta analy$.tw.
3. metaanaly$.tw.
4. meta analysis.pt.
5. (systematic adj (review$1 or overview$1)).tw.
6. exp Review Literature/
7. or/1-6
8. cochrane.ab.
9. embase.ab.
10. (psychlit or psyclit).ab.
11. (psychinfo or psycinfo).ab.
12. (cinahl or cinhal).ab.
13. science citation index.ab.
14. bids.ab.
15. cancerlit.ab.
16. or/8-15
17. reference list$.ab.
18. bibliograph$.ab.
19. hand-search$.ab.
20. relevant journals.ab.
21. manual search$.ab.
22. or/17-21
23. selection criteria.ab.
24. data extraction.ab.
25. 23 or 24
26. review.pt.
27. 25 and 26
28. comment.pt.
29. letter.pt.
30. editorial.pt.
31. animal/
32. human/
33. 31 not (31 and 32)
34. or/28-30,33
35. 7 or 16 or 22 or 27
36. 35 not 34
37. psoria$.mp. [mp=ti, ot, ab, nm, hw]
38. 37 and 36
39. limit 38 to yr="2009 - 2010"

SIGN EMBASE systematic review filter
Ovid EMBASE
1. exp Meta Analysis/
2. ((meta adj analy$) or metaanalys$).tw.
3. (systematic adj (review$1 or overview$1)).tw.
4. or/1-3
5. cancerlit.ab.
6. cochrane.ab.
7. embase.ab.
8. (psychlit or psyclit).ab.
9. (psychinfo or psycinfo).ab.
10. (cinahl or cinhal).ab.
11. science citation index.ab.
12. bids.ab.
13. or/5-12
14. reference lists.ab.
15. bibliograph$.ab.
16. hand-search$.ab.
17. manual search$.ab.

18. relevant journals.ab.
19. or/14-18
20. data extraction.ab.
21. selection criteria.ab.
22. 20 or 21
23. review.pt.
24. 22 and 23
25. letter.pt.
26. editorial.pt.
27. animal/
28. human/
29. 27 not (27 and 28)
30. or/25-26,29
31. 4 or 13 or 19 or 24
32. 31 not 30
33. psoria$.mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer name]
34. 33 and 32
35. limit 34 to yr="2009 - 2010"

PubMed using Clinical Queries systematic review filter
psoria* AND systematic[sb] AND 2009 : 2010[edat]

Cochrane Library and NHS Evidence - skin disorders
psoria*

**Identification of systematic reviews**

All citations found in the searches were hand searched by reading the titles and abstracts to identify systematic reviews and potential systematic reviews relevant to psoriasis and its management. A particularly careful analysis of the methods was made to identify citations with a systematic review methodology. For all potential systematic reviews where there was still some doubt, the full texts were then read to ensure that they were indeed systematic reviews.
To determine systematic reviews, the definition of a systematic review from the Glossary of Cochrane Collaboration Terms on the Cochrane Collaboration website was used:
“A review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review. Statistical methods (meta-analysis) may or may not be used to analyse and summarise the results of the included studies.”
The final decision on whether a citation was a systematic review and relevant enough to psoriasis for inclusion made by Professor Hywel Williams, Clinical Lead for NHS Evidence - skin disorders and Co-ordinating Editor of the Cochrane Skin Group.

**Link to Psoriasis Association, organisers of Psoriasis Awareness Week**