

Psoriasis

Evidence Update November 2014

A summary of selected new evidence relevant to NICE clinical guideline 153 'The assessment and management of psoriasis' (2012)

Evidence Update 68



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Introduction

Evidence Updates are intended to increase awareness of new evidence – they do not replace current NICE guidance and do not provide formal practice recommendations.

Evidence Updates reduce the need for individuals, managers and commissioners to search for new evidence. For contextual information, this Evidence Update should be read in conjunction with the relevant clinical guideline.

This Evidence Update provides a summary of selected new evidence published since the literature search was last conducted for the following NICE guidance:

¹  **[Psoriasis](#). NICE clinical guideline 153 (2012)**

A search was conducted for new evidence from 8 March 2012 to 9 June 2014. A total of 2808 pieces of evidence were initially identified. After removal of duplicates, a series of automated and manual sifts were conducted to produce a list of the most relevant references. The remaining 34 references underwent a rapid critical appraisal process and then were reviewed by an [Evidence Update Advisory Group](#), which advised on the final list of 12 items selected for the Evidence Update. See [Appendix A](#) for details of the evidence search and selection process.

Evidence selected for inclusion in this Evidence Update may highlight a potential impact on guidance: that is, a high-quality study, systematic review or meta-analysis with results that suggest a change in practice. Evidence that has no impact on guidance may be a key read, or may substantially strengthen the evidence base underpinning a recommendation in the NICE guidance.

The Evidence Update gives a preliminary assessment of changes in the evidence base and a final decision on whether the guidance should be updated will be made by NICE according to its published processes and methods.

This Evidence Update was developed to help inform the review proposal on whether or not to update NICE clinical guideline 153 ([NICE CG153](#)). The process of updating NICE guidance is separate from both the process of an Evidence Update and the review proposal.

See the NICE clinical guidelines [methods guides](#) for further information about updating clinical guidelines.

NICE Pathways

NICE pathways bring together all related NICE guidance and associated products on the condition in a set of interactive topic-based diagrams. The following NICE Pathways cover advice and recommendations related to this Evidence Update:

- [Psoriasis](#). NICE Pathway

Quality standards

- [Psoriasis](#). NICE quality standard 40

Feedback

If you would like to comment on this Evidence Update, please email contactus@evidence.nhs.uk

¹ [NICE-accredited guidance](#)

Key points

The following table summarises the key points for this Evidence Update and indicates whether the new evidence may have a potential impact on [NICE CG153](#). Please see the full commentaries for details of the evidence informing these key points.

The section headings used in the table below are taken from [NICE CG153](#).

Evidence Updates do not replace current NICE guidance and do not provide formal practice recommendations.

Key point	Potential impact on guidance	
	Yes	No
<p>Assessment and referral</p> <p><i>Psoriasis assessment tools</i></p> <ul style="list-style-type: none"> In specialist settings, the Simplified Psoriasis Index (SPI) appears to be a valid and reliable psoriasis assessment tool that is comparable to other established tools such as the Psoriasis Area and Severity Index (PASI) and the Dermatology Life Quality Index (DLQI). It appears to provide a simpler and more comprehensive means of psoriasis assessment but further validation in other settings is needed. <p><i>Nail psoriasis assessment tools</i></p> <ul style="list-style-type: none"> The Nail Assessment in Psoriasis and Psoriatic Arthritis (NAPPA) tool appears to be a valid, reliable and practical alternative to the Nail Psoriasis Severity Index (NAPSI) in assessing patient-relevant nail psoriasis outcomes but further validation in other settings is needed. <p><i>Quality of life assessment tools</i></p> <ul style="list-style-type: none"> In dermatology outpatients, the Skindex-29 quality of life instrument has good correlation with existing tools (the DLQI, the Psoriasis Disability Index [PDI], and the Short-Form Health Survey 36 [SF-36]) and appears to have greater sensitivity to clinical severity than other instruments, particularly in mild psoriasis. However, further validation in other settings is needed. <p><i>Assessment and referral for psoriatic arthritis</i></p> <ul style="list-style-type: none"> The CONTEST psoriatic arthritis assessment tool combines the most discriminatory questions from existing tools (the Psoriatic Arthritis Screening Evaluation [PASE], the Toronto Psoriatic Arthritis Screen [ToPAS], and the Psoriasis Epidemiological Screening Tool [PEST]). It appears to be an improvement over current instruments but further validation in other settings is needed. In early psoriatic arthritis, improved clinical outcomes at 5 years appear to be predicted by a short delay between onset of symptoms and diagnosis, higher baseline functional status, and male gender. 		<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

Key point	Potential impact on guidance	
	Yes	No
<ul style="list-style-type: none"> Ultrasound evaluation of nails in people with psoriasis appears to correlate well with NAPSI assessment. Additionally, extensor tendon enthesopathy can accompany both psoriasis and psoriatic arthritis, and enthesopathy of the tendon appears to be more frequent in patients with nail abnormalities as determined by physical examination. <p><i>Diet, physical exercise and weight loss in overweight patients with psoriasis</i></p> <ul style="list-style-type: none"> An energy-restricted diet, with or without the addition of physical exercise, can reduce psoriasis severity and improve health-related quality of life in overweight or obese patients with psoriasis. <p><i>Tailored, computerised cognitive behavioural therapy (CCBT) for people with psoriasis</i></p> <ul style="list-style-type: none"> Tailored CCBT for people with mild to moderate psoriasis appears to reduce anxiety and increase quality of life. 		<ul style="list-style-type: none"> ✓ ✓ ✓
<p>Topical therapy</p> <ul style="list-style-type: none"> In psoriasis of the trunk and limbs, corticosteroids perform at least as well as vitamin D analogues for treating chronic plaque psoriasis, and vitamin D plus a corticosteroid is more effective than either corticosteroids alone or vitamin D alone. In scalp psoriasis, vitamin D is less effective than corticosteroids. Evidence of the effect of complementary and alternative topical therapies in psoriasis is lacking. 		<ul style="list-style-type: none"> ✓ ✓
<p>Systemic therapy</p> <ul style="list-style-type: none"> Several systemic therapies for the management of plaque psoriasis are currently being reviewed as part of the NICE technology appraisal programme. 		<ul style="list-style-type: none"> ✓

1 Commentary on new evidence

These commentaries focus on the 'key references' identified through the search process and prioritised by the EUAG for inclusion in the Evidence Update, which are shown in bold text. Section headings are taken from [NICE CG153](#).

1.1 [Principles of care](#)

No new key evidence for this section was selected for inclusion in this Evidence Update.

1.2 [Assessment and referral](#)

Assessment tools

Psoriasis assessment tools

[NICE CG153](#) recommends that in specialist settings, a validated tool should be used to assess severity of psoriasis, for example the [Psoriasis Area and Severity Index](#) (PASI). Additionally, in specialist settings, and if practical in non-specialist settings, a validated tool should be used to assess the impact of any type of psoriasis on physical, psychological and social wellbeing, for example the [Dermatology Life Quality Index](#) (DLQI) for adults.

In the [full version of NICE CG153](#), it was noted that there are some issues with these tools. The PASI is non-linear, lacks sensitivity to change when affected body surface area is less than 10%, the 3 features (erythema, scale, induration) are co-dependent, it has not been validated in children or very young children, and its clinical utility is limited to plaque-type disease. The limitations of the DLQI were acknowledged as significant, including inadequate capture of the psychological impact of psoriasis, including on mood, and that it does not capture wellbeing or coping.

Two studies examined a new tool to assess psoriasis severity.

A UK study by [Chularojanamontri et al. \(2013\)](#) assessed the validity and reliability of the Simplified Psoriasis Index (SPI) assessment tool in randomly selected adult patients attending a tertiary referral psoriasis centre. The tool has separate components for: current severity (SPI-s; weighted for functionally or psychosocially important sites), psychosocial impact (SPI-p), and past history and interventions (SPI-i). Unlike the PASI, it does not involve an estimation of body surface area affected – which can be unreliable and does not take into account that some sites are more problematic for patients than others. Two versions of SPI are available, for professionals (proSPI) and for patient self-assessment (saSPI) – both versions include the psychosocial and past history assessments, but differ in that severity is assessed by either a healthcare professional or by the patient.

ProSPI-s, saSPI-s, and SPI-p were tested in 100 patients for: criterion validity (comparison with established tools – PASI and DLQI); construct validity (correlation with established tools – PASI and DLQI); and response distribution (whether the entire scale range is used):

- For professional assessment, proSPI-s was closely correlated with PASI (Spearman's rank correlation coefficient [r]=0.91).
- For psychosocial impact, SPI-p was closely correlated with DLQI (Spearman's r =0.89).
- For response distribution, a wide range of scores were obtained for each component of the SPI (results presented graphically) suggesting minimal redundancy.

ProSPI-s, saSPI-s, SPI-p and SPI-i were then tested in 50 patients for test–retest reliability (consistency of scores across multiple uses of a tool):

- Strong test-retest reliability (indicated by intraclass correlation coefficient) was seen for proSPI-s (0.93), saSPI-s (0.82), SPI-p (0.75), and SPI-i (0.95).

Finally, proSPI-s was tested in 12 patients by 12 assessors (144 assessments) for inter-rater reliability (consistency of scores between different observers):

- Strong inter-rater reliability was seen with proSPI-s among both experienced and inexperienced psoriasis assessors (intraclass correlation coefficients of 0.80 and 0.82 respectively).

A second UK study by [Chularojanamontri et al. \(2014\)](#) assessed the SPI for responsiveness to change, and measured its equivalence to PASI. Changes from baseline in PASI and PSI scores at week 4 (n=100) and week 10 (n=65) were observed among patients starting a new psoriasis therapy at a tertiary referral psoriasis centre. The PASI scores were then used to derive:

- The ability of the professional (proSPI-s) and patient (saSPI-s) versions of the SPI to discriminate between responders and non-responders to therapy:
 - Based on receiver operating characteristic (ROC) analysis, responsiveness to change was detected well by proSPI-s, saSPI-s and PASI (area under the curve [AUC] =0.72–0.96).
- Minimum clinically important difference values (namely, those corresponding to a change in psoriasis perceptible to the patient) for the proSPI-s and saSPI-s:
 - From ROC and PASI-based anchor analysis, the minimum clinically important difference for the proSPI-s was a mean absolute change in score of 5.25 (percentage change 63%). For the saSPI-s, the minimum clinically important difference was a mean absolute change in score of 7.25 (percentage change 71%).
- The proSPI-s and saSPI-s cut-off scores denoting mild, moderate and severe psoriasis:
 - Based on PASI cut-off scores for mild (PASI <10), moderate (PASI 10–20) and severe (PASI > 20) psoriasis, equivalent scores were proposed for both the proSPI-s (mild <9, moderate 9–18, and severe >18) and the saSPI-s (mild <10, moderate 10–20, and severe >20).

Limitations of the evidence common to both studies included that:

- All patients were recruited from a tertiary referral psoriasis centre therefore results may not be transferable to other settings.
- Patient selection was not described in detail.
- Except for inter-rater reliability testing, all professional assessments were done by a single individual.
- PSI was evaluated against only 2 established tools – PASI and DLQI.
- One of the authors named on the 2 articles was responsible for developing the SPI, which has the potential to introduce bias.

The evidence suggests that in specialist settings, the SPI appears to be a valid and reliable psoriasis assessment tool that is comparable to other established tools such as the PASI and the DLQI, and appears to provide a simpler and more comprehensive means of psoriasis assessment. Although [NICE CG153](#) does not recommend SPI for assessment of psoriasis, its lack of validation outside of tertiary care settings mean that these results are unlikely to have an impact on the guideline. However, the potential of the SPI to address some of the issues with current tools warrants further research to validate it in a wider array of disease severities and settings including primary and secondary care.

Key references

Chularojanamontri L, Griffiths CE, Chalmers RJ (2013) [The Simplified Psoriasis Index \(SPI\): a practical tool for assessing psoriasis](#). *Journal of Investigative Dermatology* 133: 1956–62

Chularojanamontri L, Griffiths CE, Chalmers RJ (2014) [Responsiveness to change and interpretability of the Simplified Psoriasis Index](#). *Journal of Investigative Dermatology* 134: 351–8

Nail psoriasis assessment tools

[NICE CG153](#) recommends using the Nail Psoriasis Severity Index² (NAPSI) to assess nail disease in specialist settings:

- if there is a major functional or cosmetic impact or
- before and after treatment is initiated specifically for nail disease.

A multinational, multicentre study by [Augustin et al. \(2014\)](#) aimed to develop and validate a new tool for assessing patient-relevant nail psoriasis outcomes: the Nail Assessment in Psoriasis and Psoriatic Arthritis (NAPPA). The tool comprised 3 components: a questionnaire assessing quality of life (NAPPA-QoL); a questionnaire assessing patient-relevant treatment benefits (the Patient Benefit Index, NAPPA-PBI); and a psoriasis Clinical Assessment of Severity (NAPPA-CLIN). Development of the NAPPA-QoL and NAPPA-PBI questionnaires involved several steps:

- Surveying patients (n=120) from Germany and the USA, with acute or chronic nail psoriasis of any type or duration, to collect statements about nail psoriasis disease burden, needs and treatment goals.
- Conversion of the statements into questionnaires by an expert panel, including patients.
- Translation into 6 languages.
- Feasibility testing and longitudinal validation in patients (n=203) from 6 countries (Denmark, Germany, Italy, Japan, Spain, the USA) who were receiving treatment for nail psoriasis.

Based on NAPSI data collected as part of the validation study, the NAPPA-CLIN was then developed as a brief, less complex tool than those currently available for clinical assessment of nail psoriasis severity. Namely, the NAPPA-CLIN assesses a combination of only the 4 least and most affected fingers and toes, rather than all 20 digits.

At baseline, the instructions and purpose of the NAPPA-QoL and NAPPA-PBI questionnaires were clear to 95% and 84% of patients respectively (increasing to 96% and 97% respectively at follow-up at 12–16 weeks). The mean completion times for both questionnaires were 10.8 minutes at baseline and 10.2 minutes at follow up. NAPPA-QoL and NAPPA-PBI showed good convergent validity with established measures of clinical status and quality of life. At baseline, absolute r values showed moderate correlation of NAPPA-QoL global scores with clinical disease measures (for example, $r=0.46$ [$p<0.001$] versus the NAPSI hands and feet score) and with other measures of quality of life (for example, $r=0.52$ [$p<0.001$] versus the DLQI). At follow-up, absolute r values showed low but statistically significant correlations of NAPPA-PBI global scores with changes in clinical measures (for example, $r=0.32$ [$p<0.001$] versus the NAPSI hands and feet score) and in quality of life measures (for example, $r=0.29$ [$p<0.001$] versus the DLQI).

NAPPA-QoL was responsive to the effects of treatment: mean score changed from 1.8 at baseline to 1.3 at follow-up (reflecting an observed improvement in 72% of patients). NAPPA-QoL was also sensitive to change: global score correlated with changes in clinical measures (for example, $r=0.35$ [$p<0.001$] versus the NAPSI hands and feet score) and in quality of life measures (for example, $r=0.67$ [$p<0.001$] versus the DLQI). The internal consistency of all

² See: Rich P, Scher RK (2003) [Nail Psoriasis Severity Index: a useful tool for evaluation of nail psoriasis](#). *Journal of the American Academy of Dermatology* 49: 206–12

NAPPA-QoL scales met the typical standard for Cronbach's alpha quoted by the authors of 0.80 (for example, NAPPA-QoL global score=Cronbach's alpha of 0.95). The NAPPA-CLIN correlated highly with total NAPS I score ($r=0.97$, $p<0.001$).

Limitations of the evidence included that:

- The statements upon which the questionnaires were based were from patients in Germany and the USA and may not be fully representative of the needs of patients in the UK.
- Although the validation study was multinational, it did not include any patients from the UK, and a detailed breakdown of patients by country was not provided.
- The baseline for the sensitivity-to-change analysis included patients who were already on stable treatment, rather than specifically starting treatment for nail psoriasis.

The evidence suggests that the NAPPA tool appears to be a valid, reliable and practical alternative to the NAPS I in assessing patient-relevant nail psoriasis outcomes. Although [NICE CG153](#) does not recommend NAPPA for assessment of nail psoriasis, limitations of the evidence mean that it is unlikely to have an impact on the guideline. However, the potential of the NAPPA to address some of the issues with current tools warrants further research to validate it, particularly in secondary care settings in the UK, and specifically in patients with nail disease as the primary problem.

Key reference

Augustin M, Blome C, Costanzo A et al. (2014) [Nail Assessment in Psoriasis and Psoriatic Arthritis \(NAPPA\): development and validation of a tool for assessment of nail psoriasis outcomes](#). *British Journal of Dermatology* 170: 591–8

Quality of life assessment tools

[NICE CG153](#) recommends that in specialist settings, and if practical in non-specialist settings, a validated tool should be used to assess the impact of any type of psoriasis on physical, psychological and social wellbeing, for example the:

- DLQI for adults or
- [Children's DLQI](#) for children and young people.

An observational, prospective, multicentre study ($n=380$) in Spain by [Fernandez-Peñas et al. \(2012\)](#) compared 4 self-administered quality of life instruments in patients aged 18 years or over with mild to severe psoriasis attending dermatology clinics. Patients of 21 dermatologists were randomised to 3 groups. All patients filled out Skindex-29, plus a second instrument chosen from: the DLQI, the Psoriasis Disability Index (PDI), or the Short-Form Health Survey 36 (SF-36). Psoriasis was severe in 40% of the recruited patients, moderate in 32%, and mild in 24% (4% did not have a PASI score recorded). Psoriasis severity and affected body surface area were not different between the 3 groups. Skindex-29 was compared with the other 3 instruments (using Spearman's r) on a group-by-group basis to avoid increased power of more patients completing Skindex-29. Floor and ceiling effects were also evaluated: a scale was deemed insensitive if more than 20% of patients reported the lowest or highest possible score.

All subscales (symptoms, emotions, functioning) of Skindex-29 showed strong correlation with the global scores of all 3 of the other instruments (Spearman's $r=0.57-0.73$, $p<0.01$). The symptoms subscale of Skindex-29 also showed a significant, albeit weaker, correlation with clinical severity on the PASI (Spearman's $r=0.20-0.35$, $p<0.05$), with only PDI showing a similar correlation among the other 3 instruments. Skindex-29 exhibited a minimal floor and ceiling effect, whereas a substantial floor effect (suggesting reduced sensitivity in mild psoriasis) was seen with most subscales of the DLQI (5 of 6), SF-36 (5 of 8) and PDI (4 of 5).

Limitations of the evidence included that:

- Randomisation was not described, and only a brief overview of patient characteristics was provided.
- The study was conducted among dermatology clinic outpatients in Spain and results may not be transferable to other settings.

The evidence suggests that in dermatology outpatients, the Skindex-29 quality of life instrument has good correlation with existing tools (the DLQI, the PDI, and the SF-36), and appears to have greater sensitivity to clinical severity than other instruments, particularly in mild psoriasis. Although [NICE CG153](#) does not specifically recommend Skindex-29 for assessment of quality of life, limitations of the evidence mean that it is unlikely to have an impact on the guideline. However, the potential of the Skindex-29 to address some of the issues with current tools warrants further research to validate it, particularly in UK and primary care settings.

Key reference

Fernandez-Peñas P, Jones-Caballero M, Espallardo O et al. (2012) [Comparison of Skindex-29, Dermatology Life Quality Index, Psoriasis Disability Index and Medical Outcome Study Short Form 36 in patients with mild to severe psoriasis](#). *British Journal of Dermatology* 166: 884–7

Assessment and referral for psoriatic arthritis

[NICE CG153](#) recommends:

- Offering annual assessment for psoriatic arthritis to people with any type of psoriasis. Assessment is especially important within the first 10 years of onset of psoriasis.
- Using a validated tool to assess adults for psoriatic arthritis in primary care and specialist settings, for example the Psoriasis Epidemiological Screening Tool³ (PEST).
- As soon as psoriatic arthritis is suspected, referring the person to a rheumatologist for assessment and advice about planning their care.

In the [full version of NICE CG153](#), it was noted that there are some issues with the PEST. For example, its moderate specificity could generate referrals which turn out to not need rheumatologist input, and clinical evidence indicated that other tools may have slightly better sensitivity or specificity (but these were considered less practicable to administer).

Psoriatic arthritis assessment tools

A study by [Coates et al. \(2014\)](#) aimed to develop a new psoriatic arthritis assessment tool by combining the most discriminatory questions from existing tools. The analysis used data from the previously reported CONTEST study ([Coates et al. 2013](#)) – a head-to-head comparison of 3 existing questionnaires: Psoriatic Arthritis Screening Evaluation (PASE), Toronto Psoriatic Arthritis Screen (ToPAS), and PEST. The questionnaires were compared using Classification Criteria for Psoriatic Arthritis (CASPAR) as the gold standard. In the CONTEST study, 657 patients (from 10 UK secondary care dermatology clinics) returned questionnaires, 318 returned positive questionnaires and were invited for examination, and 195 attended.

In Coates et al. (2014), all questions from PASE, ToPAS and PEST were examined individually for sensitivity, specificity, and Youden's index (Youden's index=sensitivity + specificity – 1). Youden's index provided a simple summary measure of misclassification error for each questionnaire item. The maximal Youden's index for individual items was 0.19, and a pragmatic cut off point of 0.1 was used to identify candidate questions.

³ See: Ibrahim GH, Buch MH, Lawson C et al. (2009) [Evaluation of an existing screening tool for psoriatic arthritis in people with psoriasis and the development of a new instrument: the Psoriasis Epidemiology Screening Tool \(PEST\) questionnaire](#). *Clinical and Experimental Rheumatology* 27: 469–74. The PEST questionnaire is reproduced in appendix T of the [full guideline](#).

The candidate questions were then combined using 4 alternative approaches:

- CONTEST: Inclusion of all questions with a Youden's index of 0.1 or more (for questions that asked about the same issue, the question with the highest discrimination was used).
 - Eight questions remained to give a score range of 0–8.
- CONTESTw: The same methodology as CONTEST, except weighting was given to questions that independently predicted arthritis.
 - One question from CONTEST was weighted as 5, one question was weighted as 2, and all others were weighted as 1, giving a score range of 0–13.
- CONTESTjt: The same methodology as CONTEST, but with the addition of a mannequin diagram for patients to indicate any joints causing discomfort (a cut off was determined for the number of uncomfortable joints that could predict psoriatic arthritis).
 - An optimal cut-off of 6 joints or more was chosen and added to CONTEST as a dichotomised 0 or 1 score, giving a score range of 0–9.
- CONTESTtree: All individual questions were entered into a classification and regression tree analysis to identify psoriatic arthritis. Independent variables were selected that differentiated arthritis, but the classification system was flexible by allowing different combinations of predictor variables in different subgroups (for example, different questions could be asked of patients with and without enthesitis symptoms).
 - An additional 5 questions were added to CONTEST, giving a score range of 0–13.

Once developed, the 4 new questionnaires were assessed using ROC analysis against diagnosis of psoriatic arthritis by CASPAR criteria. ROC curves were then used to identify cut-off points for positivity to screen for psoriatic arthritis. The questionnaires were then assessed using ROC analysis in the UK cohort from the original CONTEST study to assess predictive ability for psoriatic arthritis. All questionnaires reached significance, except CONTESTtree (which was not pursued further):

- CONTEST: AUC=0.69 (95% CI 0.57 to 0.81, p=0.01)
- CONTESTw: AUC=0.74 (95% CI 0.63 to 0.85, p=0.001)
- CONTESTjt: AUC=0.70 (95% CI 0.58 to 0.82, p=0.006)
- CONTESTtree: AUC=0.59 (95% CI 0.46 to 0.73, p=0.20)

ROC analysis of the 3 remaining questionnaires was then performed in 2 validation cohorts of patients who had psoriasis but no previous diagnosis of inflammatory arthritis. The cohorts were from Dublin, Ireland (n=100, of whom 29 were diagnosed with psoriatic arthritis on CASPAR) and Utah, the USA (n=145, of whom 80 were diagnosed with psoriatic arthritis). Questionnaire performance in these cohorts was similar to the UK, but CONTESTw performed less well.

ROC curves for the questionnaires were then examined to assess optimal cut-off points (a range of cut-off scores were analysed across the 3 cohorts and those with the best balance of sensitivity and specificity, in favour of higher sensitivity, were selected). For the 2 strongest candidate questionnaires (CONTEST and CONTESTjt), the sensitivities and specificities of the optimal cut-off points in each cohort (along with results from PEST for reference) were:

- CONTEST (cut-off score 4 out of 8):
 - UK (sensitivity=0.86, specificity=0.35); Dublin (sensitivity=0.38, specificity=0.89); Utah (sensitivity=0.62, specificity=0.66).
- CONTESTjt (cut-off score 5 out of 9):
 - UK (sensitivity=0.86, specificity=0.37); Dublin (n/a); Utah (sensitivity=0.57, specificity=0.71).

- PEST:
 - UK (sensitivity=0.77, specificity=0.32); Dublin (sensitivity=0.28, specificity=0.98); Utah (sensitivity=0.71, specificity=0.52).

Limitations of the evidence included that:

- In the original CONTEST study, patients who were negative on all 3 screening questionnaires (PASE, ToPAS and PEST) were not evaluated; therefore, some people with psoriatic arthritis may have been missed.
- The optimal cut-off scores of the new screening questionnaires varied in the different cohorts and further work may be needed before the cut-offs are finalised.

The evidence suggests that the CONTEST psoriatic arthritis assessment tool, which combines the most discriminatory questions from existing tools (PASE, ToPAS, and PEST), appears to be an improvement over current instruments. Although [NICE CG153](#) currently only recommends PEST to assess adults for psoriatic arthritis, lack of validation of CONTEST outside of secondary care settings means that these results are unlikely to have an impact on the guideline. However, the potential of CONTEST to address some of the issues with current tools warrants further research to validate it in a wider array of disease severities and settings including primary and tertiary care.

Key references

Coates LC, Aslam T, Al Balushi F et al. (2013) [Comparison of three screening tools to detect psoriatic arthritis in patients with psoriasis \(CONTEST study\)](#). *The British Journal of Dermatology* 168: 802–7

Coates LC, Walsh J, Haroon M et al. (2014) [Development and testing of new candidate psoriatic arthritis screening questionnaires combining optimal questions from existing tools](#). *Arthritis Care & Research* 66: 1410–6

Predictors of clinical outcome in psoriatic arthritis

A multicentre, prospective cohort study (n=197) in Sweden by [Theander et al. \(2014\)](#) examined predictors of clinical outcome in psoriatic arthritis focusing specifically on gender, joint patterns, diagnostic delay and initial disease activity. In 6 rheumatological outpatient clinics between 1999 and 2010, patients with early psoriatic arthritis (namely, having arthritis, enthesitis or dactylitis suggestive of psoriatic arthritis) were included on the Swedish Early Psoriatic Arthritis Register within 2 years of symptom onset. Patients were assessed on inclusion and after 2, 5 and 10 years. By April 2011, a total of 223 patients had received a 5-year assessment. Of these, 197 patients who fulfilled CASPAR criteria were included in the analyses. At each visit, patients were clinically examined for joint problems, inflammation, deformities, axial disease, and nail psoriasis, and scored on several assessment tools and questionnaires. Laboratory measurement of biochemical markers and radiography were performed, and antirheumatic medication was reported.

Disease activity was measured by the Disease Activity Score including 28 joints (DAS28) and the Disease Activity Index for Psoriatic Arthritis (DAPSA). Other outcome measures were:

- Minimal disease activity – meeting 5 of the 7 following criteria: tender joint count ≤ 1 ; swollen joint count ≤ 1 ; PASI ≤ 1 or body surface area ≤ 3 ; patient pain visual analogue scale ≤ 15 ; patient global disease activity visual analogue scale ≤ 20 ; Health Assessment Questionnaire ≤ 0.5 ; tender enthesal points ≤ 1 .
- Remission – defined as absence of any swollen or tender joints plus erythrocyte sedimentation rate < 20 mm during 1st hour and C-reactive protein < 0.5 mg/dl, and additionally for axial disease, the absence of signs of axial enthesitis and low-level joint or back pain.

Mean DAS28 score at baseline was significantly higher in women than men (3.7 versus 3.0, $p=0.001$), and at 5-year follow-up had significantly decreased to 2.8 in women and 2.1 in men ($p<0.001$ for difference between men and women, and for decrease from baseline). Mean

DAPSA score was also significantly higher in women than men at both baseline (22.8 versus 16.5, $p=0.004$) and follow-up (13.7 versus 10.2, $p=0.036$). The decline in DAPSA score was significant in both men and women ($p<0.001$).

In multivariate age-adjusted analysis of predictors of minimal disease activity at 5-year follow-up among all patients, the 2 significant ($p<0.05$) predictors were: baseline Health Assessment Questionnaire score (a measure of functional status; OR=0.58, 95% CI 0.34 to 0.95); and months of delay before specialist care (OR=0.89, 95% CI 0.83 to 0.94). In univariate age-adjusted analysis of predictors of remission at 5 years (multivariate analysis not performed), the only significant predictor was male gender (OR=2.32, 95% CI 1.09 to 4.94, $p<0.05$). However, remission according to the strict definition in the study was achieved by only 35 patients, limiting the statistical power of the evaluation.

Limitations of the evidence include that analyses were based on Swedish registry data and results may not therefore be fully transferable to the UK.

The evidence suggests that in early psoriatic arthritis, improved clinical outcomes at 5 years appear to be predicted by a short delay between onset of symptoms and diagnosis, higher baseline functional status, and male gender. These data are consistent with recommendations in [NICE CG153](#) to offer annual assessment for psoriatic arthritis and to refer the patient to a rheumatologist as soon as psoriatic arthritis is suspected.

Key reference

Theander E, Husmark T, Alenius GM et al. (2014) [Early psoriatic arthritis: short symptom duration, male gender and preserved physical functioning at presentation predict favourable outcome at 5-year follow-up. Results from the Swedish Early Psoriatic Arthritis Register \(SwePsA\)](#). *Annals of the Rheumatic Diseases* 73: 407–13

Link between nail psoriasis and extensor tendon enthesopathy at the distal interphalangeal joint

A cross-sectional study ($n=106$) by [Aydin et al. \(2012\)](#) compared ultrasound with the modified NAPSI to investigate the nail plate, nail matrix and adjacent tendons in psoriatic nail disease, and to test links between nail involvement and extensor tendon enthesopathy. A total of 86 patients with psoriasis, with or without psoriatic arthritis (169 nails), and 20 healthy participants (40 nails) were assessed by rheumatologists using both the modified NAPSI and ultrasound. For the ultrasound assessment, 2 nails per patient were scanned – namely, the most severely affected nail (selected by the clinician who performed the modified NAPSI) and the corresponding nail on the other hand. The thickness of the extensor tendon at insertion was deemed normal or thickened by comparison with the proximal tendon. The ultrasonographer was unaware of nail or skin disease other than that involved in the scan.

Nail abnormalities on ultrasound were significantly more frequent among patients with psoriasis than healthy participants (49% versus 10%, $p<0.002$), and absolute agreement between abnormal findings on the modified NAPSI and ultrasound was 76.3% ($p<0.0001$). More patients with clinical nail disease had enthesal extensor tendon thickening on ultrasound than patients without clinical nail disease in both psoriasis (38% versus 16%, $p=0.03$) and psoriatic arthritis (47% versus 19%, $p=0.008$). Enthesal thickening of the extensor tendon was more frequent in patients with an abnormality in the adjacent nail by physical examination (42% versus 17%, $p=0.001$). Nail thickness was greater among patients with psoriasis than healthy participants (0.56 mm versus 0.5 mm, $p<0.0001$) as was the thickness of the nail matrix (1.9 mm versus 1.8 mm, $p=0.003$) and adjacent skin (1.1 mm versus 1 mm, $p<0.0001$).

Limitations of the evidence included that:

- It was not entirely possible to blind the ultrasonographer to skin disease if the patient had very severe psoriasis. However, this was avoided as far as possible by prohibiting

conversation between the patient and the ultrasonographer about their disease and by darkening the ultrasound assessment room.

- Selection of patients or control participants was not described.

The evidence suggests that ultrasound evaluation of nails in people with psoriasis appears to correlate well with NAPSI assessment. Additionally, extensor tendon enthesopathy can accompany both psoriasis and psoriatic arthritis, and enthesopathy of the tendon appears to be more frequent in patients with nail abnormalities as determined by physical examination.

Although [NICE CG153](#) does not currently note any link between nail disease and enthesopathy (which could indicate psoriatic arthritis risk), the evidence constitutes preliminary findings and is unlikely to have an impact on the guideline. More research is needed to further investigate links between nail disease, tendon enthesopathy and psoriatic arthritis, and how this could translate into clinical practice – particularly in the early detection of arthritis.

Key reference

Aydin SZ, Castillo-Gallego C, Ash ZR et al. (2012) [Ultrasonographic assessment of nail in psoriatic disease shows a link between onychopathy and distal interphalangeal joint extensor tendon enthesopathy](#). *Dermatology* 225: 231–5

Diet, physical exercise and weight loss in overweight patients with psoriasis

[NICE CG153](#) recommends discussing risk factors for cardiovascular comorbidities with people who have any type of psoriasis (and their families or carers where appropriate). Where appropriate, people should be offered preventive advice, healthy lifestyle information and support for behavioural change tailored to meet the needs of the individual in line with the relevant NICE guidance. Suggested guidance relevant to diet, exercise and weight loss includes: ‘Lipid modification’ ([NICE clinical guideline 181](#)), ‘Obesity’ ([NICE clinical guideline 43](#)), ‘Four commonly used methods to increase physical activity’ ([NICE public health guidance 2](#)), ‘Promoting physical activity in the workplace’ ([NICE public health guidance 13](#)), and ‘Promoting physical activity for children and young people’ ([NICE public health guidance 17](#)).

However, diet, exercise and weight loss are only discussed by [NICE CG153](#) as part of reducing risk factors for cardiovascular comorbidities. No recommendations are currently made about these interventions in relation to their effect on psoriasis severity.

A randomised controlled trial (n=60) in Denmark by [Jensen et al. \(2013\)](#) examined the effect of a calorie-restricted diet on psoriasis severity in overweight and obese patients (BMI >27 kg/m²) aged over 18 years with plaque psoriasis. Patients were recruited from a dermatology outpatient clinic and by newspaper advertisement. Exclusion criteria were: pregnancy; breastfeeding; insulin treatment; severe heart, kidney, or liver disease; gout; use of drugs that could increase potassium levels; obesity caused by medical conditions; medical treatment to reduce weight; intentional or unintentional weight loss of more than 5 kg up to 3 months before inclusion; and changes in antipsoriatic treatment within the 3 months before inclusion.

Patients were randomised to a low-energy diet (800–1000 kcal/day of formula-based food) for 8 weeks, followed by an 8-week re-introduction of normal food intake (up to 1200 kcal/day), or to a control group (ordinary healthy foods). All participants also attended 8 group sessions held fortnightly with a dietitian who provided dietary advice and encouragement. Participants were asked not to change their antipsoriatic treatment, tobacco use, or physical exercise levels during the study. Drugs for other medical conditions could be changed as needed. The primary outcome measure was change in psoriasis severity measured by the PASI.

Baseline median PASI score was 4.8 in the low-energy diet group and 5.5 in the control group. At 16 weeks, mean PASI score had decreased by 2.3 in the diet group and 0.3 in

controls, although the between-group difference was non-significant (-2.0 , 95% CI -4.1 to 0.1 , $p=0.06$). However, significant between-group differences in mean change from baseline in favour of the low-energy diet were seen for the secondary outcomes of DLQI score (-2.0 , 95% CI -3.6 to -0.3 , $p=0.02$), weight (-15.4 kg, 95% CI -18.5 to -12.3 kg, $p<0.001$) and BMI (-5.0 kg/m², 95% CI -5.9 to -4.0 kg/m², $p<0.001$).

Limitations of the evidence included that:

- The trial lasted 16 weeks therefore did not assess long-term maintenance of weight loss.
- The primary investigator was unblinded to treatment allocation, with the potential for observer bias.
- Psoriasis was mild to moderate in most patients so results may not be transferable to those with more severe disease.
- The ability of patients to adhere to an 800 kcal/day diet outside of a trial setting may need to be investigated further.
- 20% of patients were treated with systemic drugs, which may have influenced weight loss.

A multicentre, randomised controlled trial ($n=303$) in Italy by [Naldi et al. \(2014\)](#) also looked at the impact of a dietary intervention, but with the addition of a physical exercise component, on psoriasis severity in overweight or obese patients (BMI ≥ 25 kg/m²). Participants aged 18–80 years with chronic plaque psoriasis (PASI score ≥ 10), and whose psoriasis had not cleared after 4 weeks of continuous systemic treatment, were recruited from 9 hospitals. Topical agents could be used as needed on limited areas (scalp, palms, soles). Exclusion criteria were: pregnancy; breastfeeding; diabetes; systemic liver or kidney disease; hyper- or hypothyroidism; inflammatory bowel disease or other immune-related conditions; or being on a diet or drug treatment to reduce weight.

Patients were randomised to either a 20-week dietary plan (including monthly review with a dietitian) plus physical exercise, or to a control group receiving a single 15-minute session at baseline about weight loss to control psoriasis. The dietary plan comprised an energy intake of 0.8 times resting metabolic rate for 12 weeks and 1.0 times resting metabolic rate for the final 8 weeks, with dietary intake comprising 55% carbohydrate, 30% fat and 15% protein. The exercise component comprised at least 40 minutes of continuous aerobic physical exercise 3 times a week. The goal for weight reduction was 5%, and the primary outcome was change in psoriasis severity measured by the PASI.

At baseline, among all patients: 70.6% had a PASI score of less than 10; 15.5% had a score of 10–20; and 13.9% had a score of greater than 20. At 20 weeks, median PASI score in the diet group had decreased by 48.0% (95% confidence interval 33.3 to 58.3%) and in the control group by 25.5% (95% confidence interval 18.2 to 33.3%; $p=0.02$ for difference between groups). The change in absolute PASI scores from baseline was not stated. Among secondary outcomes, significant differences in median change from baseline were seen between the diet group and control group for weight (-3.0 kg [-3.0%] versus -1.7 kg, [-1.8%], $p<0.001$) and BMI (-3.0% versus -1.9% , $p=0.002$).

Limitations of the evidence included that:

- The control group received less supervision than those in the diet group, which could have affected adherence to treatment.
- Systemic therapy could be altered in all patients during the trial (in the case of adverse events or intolerance), which may have influenced weight loss.
- The trial lasted 20 weeks therefore did not assess long-term maintenance of weight loss.

The evidence suggests that an energy-restricted diet, with or without the addition of physical exercise, can reduce psoriasis severity and improve health-related quality of life in overweight or obese patients with psoriasis. Although [NICE CG153](#) does not make any recommendations

about diet or exercise specifically to treat psoriasis, the current evidence is limited and is unlikely to have an impact on the guideline. Further, longer-term research is needed to more firmly establish the place of diet and exercise in treating psoriasis directly, not just for reducing cardiovascular risk.

Key references

Jensen P, Zachariae C, Christensen R et al. (2013) [Effect of weight loss on the severity of psoriasis: a randomized clinical study](#). *JAMA Dermatology* 149: 795–801

Naldi L, Conti A, Cazzaniga S et al. (2014) [Diet and physical exercise in psoriasis: a randomized controlled trial](#). *British Journal of Dermatology* 170: 634–42

Tailored, computerised cognitive behavioural therapy for people with psoriasis

[NICE CG153](#) recommends assessing whether people with any type of psoriasis are depressed when assessing disease severity and impact, and when escalating therapy. If appropriate, information, advice and support should be offered in line with 'Depression in adults with a chronic physical health problem' ([NICE clinical guideline 91](#)) and 'Depression in children and young people' ([NICE clinical guideline 28](#)). However, a lack of evidence when the original guideline was developed meant that no recommendations could be made about the treatment of other comorbid psychological problems such as anxiety, or the use of psychological therapies aimed specifically at people with psoriasis.

A randomised controlled trial (n=135) in the UK by [Bundy et al. \(2013\)](#) examined whether tailored computerised cognitive behavioural therapy (CCBT) can reduce distress, and improve quality of life and clinical severity, in patients with mild to moderate plaque psoriasis. Patients were recruited from the community by advertisement, and were excluded if they had a current psychiatric illness, or were receiving psychological treatment. Participants were randomised to a 6-week CCBT programme, or to a control of usual care (the control group went on to receive the CCBT intervention after the 6-week study period).

The CCBT programme ('eTIPs') consisted of 6 modules of CBT plus education tailored to psoriasis. The modules comprised an introduction, followed by 5 sections covering: self-esteem; thinking styles; low mood and depression; stress and tension; and coping. The modules were in a multimedia format including reading material, actors playing the part of patients discussing their experiences, and brief assignments to test understanding. One module was expected to be completed per week.

Primary outcomes were anxiety and depression measured on the Hospital Anxiety and Depression Scale. A per-protocol analysis was performed for complete cases (namely those patients who provided usable post-intervention data; n=76–85 depending on the outcome) alongside an intention-to-treat analysis of all cases (namely every patient, including those with incomplete data). Multiple imputation was used to substitute missing values.

For complete cases, the reduction in the CCBT group in mean anxiety score from baseline to follow-up after the 6-week intervention (from 7.6 to 6.1) was greater than that seen in the control group (from 8.3 to 8.1; p=0.033 for between-group difference). However, this difference was not significant when all cases were analysed. Depression scores at follow-up did not differ significantly between groups in either the complete-case or all-case analysis.

Of the secondary outcomes, in the complete-case analysis, a greater improvement was seen in quality of life score (measured by the DLQI) in the CCBT group from baseline to follow-up (from 6.6 to 5.0) than in the control group (from 7.4 to 7.7; p=0.036 for between-group difference). This difference was also significant in the all-case analysis. Psoriasis severity (measured by self-administered PASI) was no different between groups at follow-up in either of the analyses.

Limitations of the evidence included that:

- The attrition rate was high, particularly in the CCBT group.
- The authors noted that at baseline, rate of clinical depression among the study sample was relatively low (15.5% – less than that found in other similar studies), and mean scores were all below 9 (the threshold level for clinical diagnosis). The anxiety rate of 26.4% was, however, comparable with other studies.
- The DLQI does not measure distress (which the authors noted is known to influence medicines adherence) so total impact on quality of life may have been underestimated.
- Psoriasis was measured by self-administered PASI, which may be less objective than a clinician rating.

The evidence suggests that tailored CCBT for people with mild to moderate psoriasis appears to reduce anxiety and increase quality of life. Although [NICE CG153](#) does not include recommendations specifically about the treatment of anxiety, or the use of psychological therapies tailored to psoriasis, the current evidence is limited and is unlikely to have an impact on the guideline. Further research is needed, particularly among a population with higher rates of anxiety and depression, on the use of CCBT in treating comorbid psychological problems such as anxiety.

Key reference

Bundy C, Pinder B, Bucci S et al. (2013) [A novel, web-based, psychological intervention for people with psoriasis: the electronic Targeted Intervention for Psoriasis \(eTIPs\) study](#). *British Journal of Dermatology* 169: 329–36

1.3 [Topical therapy](#)

Topical treatments for chronic plaque psoriasis

[NICE CG153](#) recommends various topical treatments for psoriasis depending on the affected area of the body. These treatments are listed below in the order in which they appear in the guideline, beginning with first line therapies (see the guideline for full details of the recommendations including treatment duration and safe usage):

- Trunk and limbs:
 - In adults offer: once-daily potent corticosteroid plus once-daily vitamin D or analogue; twice-daily vitamin D or analogue alone; twice-daily potent corticosteroid or once- or twice-daily coal tar preparation; once-daily combination of calcipotriol monohydrate and betamethasone dipropionate.
 - For treatment-resistant psoriasis consider short-contact dithranol.
 - In children and young people consider⁴ either: once-daily calcipotriol (only for those over 6 years of age) or once-daily potent corticosteroid (only for those over 1 year of age).
- Scalp: Once-daily potent corticosteroid⁵; a different formulation of the potent corticosteroid (for example, shampoo or mousse) and/or topical agents to remove adherent scale (for example, salicylic acid, emollients and oils); once-daily combination of calcipotriol monohydrate and betamethasone dipropionate⁶, or once-daily vitamin D or

⁴ The BNF for children should be referred to for information on appropriate dosing and duration of treatment.

⁵ Potent corticosteroids should be used only according to UK marketing authorisation, which was limited to those over 1 year of age at the time of publication of NICE CG153.

⁶ At the time of publication of NICE CG153, the combined product containing calcipotriol monohydrate and betamethasone dipropionate did not have UK marketing authorisation for this indication in children and young people.

analogue⁷ (in those who cannot use steroids and with mild to moderate scalp psoriasis); twice-daily very potent corticosteroid (for adults only), or once- or twice-daily coal tar preparation. Topical vitamin D or analogue alone should be considered only in people who cannot use topical corticosteroids at this site or who have mild to moderate scalp psoriasis. Coal tar-based shampoos alone should not be offered for severe scalp psoriasis.

- Face, flexures and genitals: Once- or twice-daily mild or moderate potency corticosteroid⁸; twice-daily calcineurin inhibitor⁹ (for adults only). Potent or very potent corticosteroids should not be used on the face, flexures or genitals.

A Cochrane review by [Mason et al. \(2013\)](#) examined the efficacy, tolerability, and safety of topical treatments for chronic plaque psoriasis. Randomised controlled trials (RCTs) comparing active topical treatments against placebo or against vitamin D analogues (used alone or in combination) in people of any age with chronic plaque psoriasis were included. Any topical treatment was eligible except for products with no licence and for which research was discontinued. For within-patient studies (in which participants are their own control), studies were excluded if multiple plaques were treated with more than 2 products. Studies with fewer than 10 participants (including case reports), and studies of systemic or phototherapy treatments with adjunctive topical treatment, were also excluded. A total of 177 RCTs (n=34,808) were identified, including 26 trials of scalp psoriasis and 6 trials of psoriasis of the flexures, face, or both.

Primary outcomes were: Investigator's Assessment of Overall Global Improvement (IAGI) or Investigator's Global Assessment of Disease Severity (IGA); Total Severity Scores (TSS); PASI; and Patient Assessment of overall Global Improvement (PAGI) or Patient Global Assessment of Disease Severity (PGA). The authors additionally developed a 'combined' end point (to facilitate treatment comparisons) by taking IAGI (or IGA) data when available and failing that (in order of availability), data from: TSS, PASI, PAGI (or PGA). Findings were analysed using standardised mean difference (SMD) in a random-effects model. Results given below are all based on the combined endpoint.

In psoriasis of the trunk and limbs, the following treatments were all significantly more effective than placebo:

- Vitamin D analogues (SMD=-0.90, 95% CI -1.07 to -0.72; 30 RCTs, n=4986).
- Potent corticosteroids (SMD=-0.89, 95% CI -1.06 to -0.72; 13 RCTs, n=2216).
- Very potent corticosteroids (SMD=-1.56, 95% CI -1.87 to -1.26; 10 RCTs, n=1264).
- Dithranol (SMD=-1.06, 95% CI -1.66 to -0.46; 3 RCTs, n=47).
- Vitamin D and corticosteroid combination products (namely, calcipotriol plus betamethasone dipropionate):
 - Once daily (SMD=-1.21, 95% CI -1.50 to -0.91; 4 RCTs, n=1416).
 - Twice daily (SMD=-1.90, 95% CI -2.09 to -1.71; 2 RCTs, n=848).

For active treatment comparisons in psoriasis of the trunk and limbs:

- Vitamin D plus a corticosteroid was significantly more effective than corticosteroids alone (SMD=-0.26, 95% CI -0.52 to -0.00; 5 RCTs, n=2113), and vitamin D alone was

⁷ In children, when offering an agent in the vitamin D or vitamin D analogue class, calcipotriol should be chosen, because at the time of publication of NICE CG153 calcitriol and tacalcitol did not have UK marketing authorisation for this group.

⁸ At the time of publication of NICE CG153, moderate potency corticosteroids did not have UK marketing authorisation for this indication.

⁹ At the time of publication of NICE CG153, calcineurin inhibitors did not have UK marketing authorisation for this indication.

significantly less effective than vitamin D plus a corticosteroid (SMD=0.46, 95% CI 0.33 to 0.59; 17 RCTs, n=5856).

- Vitamin D analogues were no more effective than potent corticosteroids (SMD=0.11, 95% CI -0.07 to 0.30; 14 RCTs, n=3542) or very potent corticosteroids (SMD=-0.06, 95% CI -0.57 to 0.44; 2 RCTs, n=82).
- Vitamin D alone was no more effective than dithranol (SMD=0.09, 95% CI -0.44 to 0.63; 8 RCTs, n=1284) or than other vitamin D preparations (SMD=-0.17, 95% CI -0.62 to 0.27; 4 RCTs, n=513).

In scalp psoriasis:

- The very potent corticosteroid clobetasol propionate was significantly more effective than placebo (SMD=-1.57, 95% CI -1.81 to -1.34; 4 RCTs, n=788).
- A combination of calcipotriol and betamethasone dipropionate was significantly more effective than betamethasone alone (SMD=-0.18, 95% CI -0.26 to -0.10, 3 RCTs, n=2444), and calcipotriol was significantly less effective than a combination of calcipotriol and betamethasone dipropionate (SMD=0.64, 95% CI 0.44 to 0.84; 4 RCTs, n=2581).
- Vitamin D was less effective than potent corticosteroids: for example, calcipotriol was significantly less effective than either betamethasone dipropionate (SMD=0.48, 95% CI 0.32 to 0.64; 2 RCTs, n=1676) or betamethasone valerate (SMD=0.37; 95% CI 0.20 to 0.55; 2 RCTs, n=510).

For psoriasis of the trunk, limbs and scalp, the rate of local adverse events (such as burning or irritation) was significantly higher with calcipotriol than betamethasone dipropionate (random-effects risk difference=0.07, 95% CI 0.04 to 0.09; 3 RCTs, n=1739).

The authors also identified studies of 26 other treatments versus placebo (n=1450). Around half of the treatments (including, for example, aloe vera cream, fish oil, herbal skin care products, and *Mahonia aquifolium*) performed significantly better than placebo. However, none of the studies assessed the same treatment therefore pooled analysis was not possible, and the authors stated that findings should be interpreted with caution. Treatments found not to be significantly better than placebo included topical caffeine, emollient lotion of Dead Sea salts, kukui nut oil, oleum horwathiensis, and tar.

Limitations of the evidence included that:

- Only 47 studies (27%) clearly reported randomisation methods, and only 15 trials (9%) adequately concealed treatment allocation.
- A wide range of psoriasis severity was observed in the included trials, and reliability of data in the review depends on the ability of the assessment tools used by the studies to measure psoriasis across the spectrum of severity.
- Using a combined end point may have introduced bias into the pooled analyses.
- Some requests for unpublished data were unsuccessful (success was more likely for recently published studies or trials of products still under patent).

The evidence suggests that in psoriasis of the trunk and limbs, corticosteroids perform at least as well as vitamin D analogues for treating chronic plaque psoriasis, and that vitamin D plus a corticosteroid is more effective than either corticosteroids alone or vitamin D alone. In scalp psoriasis, vitamin D is less effective than corticosteroids. Evidence of the effect of complementary and alternative topical therapies in psoriasis is lacking. These data are consistent with current recommendations in [NICE CG153](#) for topical therapy and are unlikely to have an impact on the guideline.

Key reference

Mason AR, Mason J, Cork M et al. (2013) [Topical treatments for chronic plaque psoriasis](#). *Cochrane Database of Systematic Reviews* issue 3: CD005028

1.4 [Phototherapy \(broad- or narrow-band UVB light and PUVA\)](#)

No new key evidence for this section was selected for inclusion in this Evidence Update.

1.5 [Systemic therapy](#)

NICE has several published and in-development technology appraisals of systemic drug treatments for psoriasis. Therefore, evidence for systemic therapies was not considered for inclusion in this Evidence Update.

Information about relevant published and in-development NICE technology appraisals is provided below. Details of proposed appraisals not yet disclosed in the public domain are not provided.

Systemic non-biological therapy in psoriasis

[NICE CG153](#) currently recommends offering methotrexate¹⁰ or ciclosporin¹¹ as the first choice of systemic non-biological therapy for people with psoriasis who fulfil the criteria for systemic therapy (see [NICE CG153](#) for full details of the recommendations, including the criteria for systemic therapy, and any exceptions and additional considerations). Acitretin should be considered for adults, and in exceptional cases only for children and young people, if methotrexate and ciclosporin are not appropriate or have failed, or for people with pustular forms of psoriasis.

[NICE CG153](#) does not include recommendations on the use of any other systemic non-biological therapies. However, the following NICE technology appraisals are in development:

- [Apremilast](#) for treating moderate to severe plaque psoriasis.
- [Dimethyl fumarate](#) for treating moderate to severe plaque psoriasis.

Systemic biological therapy in psoriasis

Recommendations for systemic biological therapies in [NICE CG153](#) are taken directly from the following published technology appraisals, which are listed in alphabetical order by drug (the individual technology appraisal guidance for each drug should be referred to for full details of the recommendations):

- [NICE technology appraisal 146](#) recommends adalimumab as a treatment option for adults with plaque psoriasis.
- [NICE technology appraisal 103](#) recommends etanercept as a treatment option for adults with plaque psoriasis.
- [NICE technology appraisal 134](#) recommends infliximab as a treatment option for adults with plaque psoriasis.
- [NICE technology appraisal 180](#) recommends ustekinumab as a treatment option for adults with plaque psoriasis.

[NICE CG153](#) does not include recommendations on the use of any other systemic biological therapies. However, the following NICE technology appraisal is in development:

- [Secukinumab](#) for treating moderate to severe plaque psoriasis in people for whom other systemic therapies have been inadequately effective, not tolerated or contraindicated.

A NICE technology appraisal of [briakinumab](#) for moderate to severe plaque psoriasis was suspended because the manufacturer withdrew its application for marketing authorisation.

¹⁰ At the time of publication of NICE CG153, methotrexate did not have UK marketing authorisation for this indication in children and young people.

¹¹ At the time of publication of NICE CG153, ciclosporin did not have UK marketing authorisation for this indication in children and young people under 16 years of age.

2 New evidence uncertainties

During the development of the Evidence Update, the following evidence uncertainties were identified for the UK Database of Uncertainties about the Effects of Treatments (UK DUETs).

Assessment and referral

- [Web-based CBT for people with psoriasis to reduce anxiety and depression](#)

Topical therapy

- [Topical treatments for chronic plaque psoriasis](#)

Further evidence uncertainties for psoriasis can be found in the [UK DUETs database](#) and in the [NICE research recommendations database](#).

UK DUETs was established to publish uncertainties about the effects of treatments that cannot currently be answered by referring to reliable up-to-date systematic reviews of existing research evidence.

Appendix A: Methodology

Scope

The scope of this Evidence Update is taken from the scope of the reference guidance:

- [Psoriasis](#). NICE clinical guideline 153 (2012)

Searches

The literature was searched to identify studies and reviews relevant to the scope. Searches were conducted of the following databases, covering the dates 8 March 2012 (the end of the search period of NICE clinical guideline 153) to 9 June 2014:

- CDSR (Cochrane Database of Systematic Reviews)
- CENTRAL (Cochrane Central Register of Controlled Trials)
- CINAHL (Cumulative Index to Nursing and Allied Health Literature)
- DARE (Database of Abstracts of Reviews of Effects)
- EMBASE (Excerpta Medica database)
- HTA (Health Technology Assessment) database
- MEDLINE (Medical Literature Analysis and Retrieval System Online)
- MEDLINE In-Process
- NHS EED (Economic Evaluation Database)

The Evidence Update search strategy replicates the strategy used by NICE CG153 (for key words, index terms and combining concepts) as far as possible. Where necessary, the strategy is adapted to take account of changes in search platforms and updated indexing language.

Table 1 provides details of the MEDLINE search strategy used, which was adapted to search the other databases listed above. The search strategy was used in conjunction with validated Scottish Intercollegiate Guidelines Network [search filters for RCTs and systematic reviews](#), and the filters used in the original guideline for observational studies (except for the topical therapy theme) and for diagnostic studies (for the assessment tools theme and for liver function tests only).

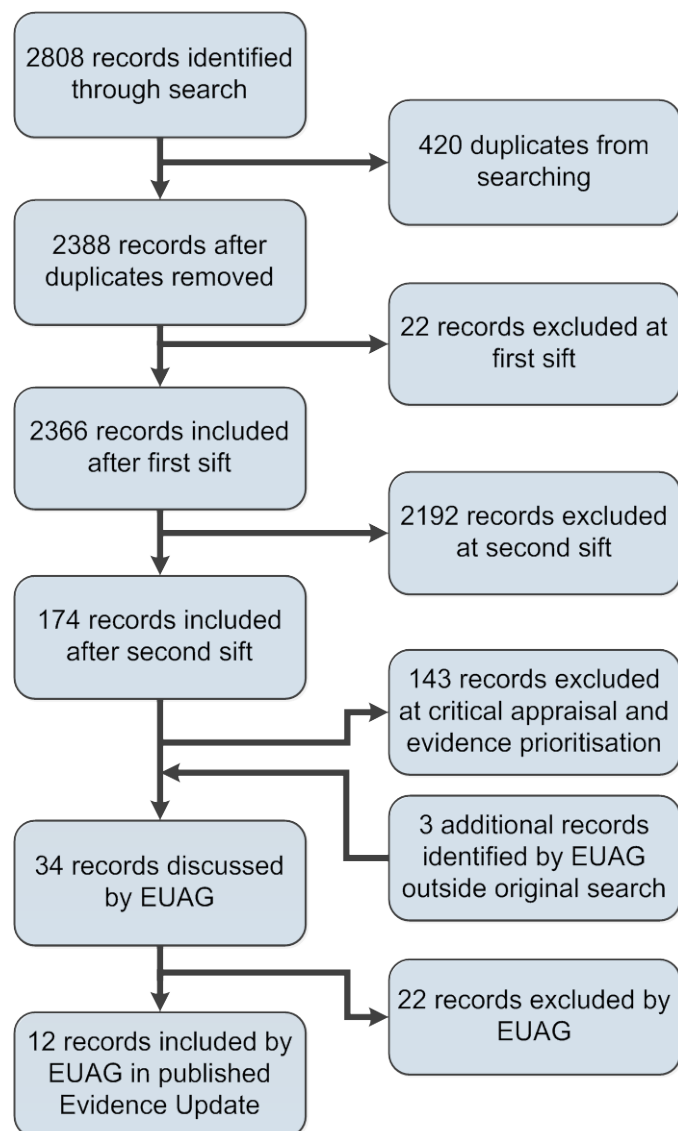
Additionally, 2 studies (Coates et al. 2014, Theander et al. 2014) were identified outside of the literature search. Figure 1 provides details of the evidence selection process. The list of evidence excluded after review by the Chair of the EUAG, and the full search strategies, are available on request from contactus@evidence.nhs.uk

See the [NICE Evidence Services](#) website for more information about [how NICE Evidence Updates are developed](#).

Table 1 MEDLINE search strategy (adapted for individual databases)

1	psoria*.ti,ab	3	(pustulo* adj3 palm*).ti,ab
2	psoriasis/ or arthritis, psoriatic/	4	1 or 2 or 3

Figure 1 Flow chart of the evidence selection process



EUAG – Evidence Update Advisory Group

Appendix B: The Evidence Update Advisory Group and Evidence Update project team

Evidence Update Advisory Group

The Evidence Update Advisory Group is a group of topic experts who reviewed the prioritised evidence from the literature search and advised on the development of the Evidence Update.

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