findings over time in a given patient also has to be carefully investigated. In our first study we showed that the diagnostic value of SGUS was the same when patients were stratified according to the duration of the disease [2], but the performance of the test has to be assessed in patients with very early disease. Longitudinal data are mandatory to determine whether it would be valuable to repeat the procedure in a patient with an initially normal SGUS.

Third, the specificity of SGUS for SS compared with other chronic salivary gland inflammatory conditions, such as sarcoidosis, IgG4-related disease, granulomatosis with polyangiitis, chronic HCV or HIV infection, graft-versus-host disease or head-and-neck radiation therapy, has not been widely described. Most of the published studies have assessed the diagnostic value of SGUS using healthy controls, other systemic autoimmune diseases or idiopathic age-related sicca syndromes. However, in a real-life clinical setting of SS suspicion, all these differential diagnoses seem to be extremely rare: in our cohort of 250 patients with suspected SS, HCV and sarcoidosis were diagnosed in only one patient each, and no patients were diagnosed with these other diseases.

To resolve these issues and consider the integration of SGUS into future classification criteria for SS, an international task force was created in 2012 to validate SGUS through the OMERACT filter. The first step of this project has been to perform an extensive and systematic literature analysis (article in preparation) in order to determine which precise SGUS findings should be assessed when the new score is developed. A web exercise on static images has been organized between 12 ultrasonographers to determine the intra- and interrater reliability of the different components of US echostructural abnormalities. The next step in the process will be to repeat the same exercise with acquisition of the images on patients and healthy controls to assess reliability and feasibility. Ultimately a prospective international study will be launched to validate the proposed score, using salivary gland biopsy as a gold standard to assess criterion validity. Only then will SGUS be considered a definitely useful gland biopsy as a gold standard to assess criterion validity. Only then will SGUS be considered a definitely useful tool to diagnose SS able to be included in new classification criteria. The next step in the process will be to repeat the procedure in a patient with an initially normal SGUS.

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Rheumatology key message

- Salivary gland US needs standardization and validation before its use in SS diagnosis.

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Screening psoriatic arthritis tools: analysis of the Early Arthritis for Psoriatic Patients questionnaire

Sir, PsA is a chronic, seronegative inflammatory arthritis associated with psoriasis. Early diagnosis and treatment are needed, since the disease can lead to irreversible changes (such as erosive arthritis), which lead to permanent physical disability and deformity. Recent studies have shown that PsA is often overlooked in patients with psoriasis. Reich et al. [1] studied 1511 patients with psoriasis, and found 17.5% patients who were newly diagnosed with PsA. In a further study including 2009 patients with psoriasis, 4.2% were newly diagnosed with PsA.
Recently, Haroon et al. [2] reported 29% newly diagnosed PsA in patients with psoriasis.

Psoriasis presents before arthritis in the majority of patients; therefore, dermatologists are ideally placed to make an early diagnosis. Several screening tools for identifying PsA in patients with psoriasis have been developed in the last decade [3–6]. These are questionnaires based on items related to symptoms and signs of PsA and appear to have good sensitivity and specificity in their respective development studies. These questionnaires do not replace a comprehensive musculoskeletal evaluation (or a decision on treatment) by a rheumatologist, but they help to increase the detection of PsA in psoriasis patients and reduce the number of patients needing assessment by the rheumatologist.

The CONTEST study [7] was carried out with the aim of comparing three of the known PsA screening questionnaires in the same population. In this study, questions from PsA screening tools, Psoriatic Arthritis Screening and Evaluation [5], Toronto Psoriatic Arthritis Screen [3] and Psoriasis Epidemiology Screening Tool (PEST) [4], and patients’ answers were stored in a database; sensitivity and specificity of these questionnaires were then calculated and compared. Little difference was found between these questionnaires: notably specificity was low for all three instruments. A new screening questionnaire, the Early Arthritis for Psoriatic Patients (EARP) has recently been developed [8].

The aim of our present study was to analyse the sensitivity and specificity of the EARP questionnaire compared with the questionnaires contained in the CONTEST study database as a fast initial analysis to establish the feasibility of performing a second analysis to test this new questionnaire in a real cohort of patients with PsA.

The first step was to translate the 10 items from the EARP questionnaire from the original Italian into English. The translation was done according to the Isis Outcomes of translation and linguistic validation process developed at the University of Oxford. The translation consisted of the following steps: a forward translation was done independently by two native Italian speakers, who translated the Italian questionnaire into English; a reconciled version was produced from the two forward translations by the main investigator; this reconciled English version was back-translated into Italian independently by two translators (the last two translators had not seen the original Italian questionnaire); the back translations were reviewed against the source version to highlight any discrepancies. The 10 translated questions of the English version of the EARP were: Do you have pain in your joints? Did you take any anti-inflammatories more than twice a week in the last 3 months? Do you wake up at night because of back pain? Do you feel your hands are stiff in the morning for more than 30 minutes? Do your fingers and wrists hurt? Are your fingers and wrists swollen? Have you ever noticed a finger swollen like a sausage for more than 3 days? Is your Achilles tendon swollen? Do you have pain in your feet and ankles? Do you have pain in your hip or elbow?

The next step was to perform an exploratory analysis comparing the questions comprising our last English translation of the EARP with the ones stored in the CONTEST database. One of the EARP questions (Did you take any anti-inflammatories more than twice a week in the last 3 months?) could not be addressed, but similarly asked questions for the other nine were available in CONTEST: these were taken from each of the other questionnaires, as appropriate, and the anatomical location questions were taken from the manikin in the PEST.

We estimated the sensitivity and specificity of the EARP questionnaire using these substitute answers. The subjects’ written consent was obtained according to the Declaration of Helsinki, and the study was approved by the Leeds (East) Research Ethics Committee.

Our results indicated that the sensitivity and specificity of the questions in the CONTEST study that were concordant with those in the EARP questionnaire were 79.5% and 35.5%, respectively (Table 1). These figures are similar to those obtained with the other questionnaires tested in this study.

The EARP was not tested directly in our patients, although it was shown in the original Italian population to be fast, taking only 2 min (1.5) min [mean (S.D.)]. This is considerably shorter than the time reported for the Psoriatic Arthritis Screening and Evaluation (6 min) [2], and there is no indication of the time for completion in

### Table 1
Comparisons of questionnaires and Early Arthritis for Psoriatic Patients English translated questionnaire

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>n</th>
<th>True positive</th>
<th>False positive</th>
<th>True negative</th>
<th>False negative</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>AUC (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASE</td>
<td>195</td>
<td>35</td>
<td>91</td>
<td>57</td>
<td>12</td>
<td>0.745</td>
<td>0.385</td>
<td>0.594 (0.505, 0.683)</td>
</tr>
<tr>
<td>PEST</td>
<td>195</td>
<td>36</td>
<td>93</td>
<td>55</td>
<td>11</td>
<td>0.766</td>
<td>0.372</td>
<td>0.610 (0.516, 0.704)</td>
</tr>
<tr>
<td>ToPAS</td>
<td>195</td>
<td>36</td>
<td>104</td>
<td>44</td>
<td>11</td>
<td>0.766</td>
<td>0.297</td>
<td>0.554 (0.455, 0.653)</td>
</tr>
<tr>
<td>EARP</td>
<td>182</td>
<td>35</td>
<td>89</td>
<td>49</td>
<td>9</td>
<td>0.795</td>
<td>0.355</td>
<td>0.634 (0.542, 0.726)</td>
</tr>
</tbody>
</table>

The information given about PASE, PEST and TOPAS proceeds from an earlier publication, the CONTEST study [7]; this information has been reproduced with permission from John Wiley and Sons: Coates LC, Aslam T, Al Balushi F et al. Comparison of three screening tools to detect psoriatic arthritis in patients with psoriasis (CONTEST study). Br J Dermatol 2013;168:802–7 [7]; © British Association of Dermatologists. Only the EARP data are novel. PEST: Psoriasis Epidemiology Screening Tool; ToPAS: Toronto Psoriatic Arthritis Screen; PASE: Psoriatic Arthritis Screening and Evaluation; EARP: Early Arthritis for Psoriatic Patients; AUC: area under the curve.
the publications describing the PEST and the Toronto Psoriatic Arthritis Screen. In conclusion, the EARP questionnaire may have acceptable sensitivity, although specificity is still low, similar to that of other screening tools.

**Rheumatology key message**

- The Early Arthritis for Psoriatic Patients questionnaire is another PsA screening tool with similar sensitivity and specificity to other screening tools.

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**References**


