Costing statement: Ustekinumab for the treatment of adults with moderate to severe psoriasis

The guidance on ‘Ustekinumab for the treatment of adults with moderate to severe psoriasis’ (NICE technology appraisal guidance 180) is unlikely to result in a significant change in resource use in the NHS.

Psoriasis is a chronic inflammatory skin disease that is characterised by an accelerated rate of turnover of the top layer of the skin (epidermis). Plaque psoriasis is characterised by thickened, red, scaly plaques typically found on the knees, elbows and scalp\(^1\). Ustekinumab is a fully human monoclonal antibody that belongs to a class of drugs known as biological therapies.

The guidance states that ustekinumab is recommended as a treatment option for adults with plaque psoriasis when the following criteria are met.

- The disease is severe, as defined by a total Psoriasis Area Severity Index (PASI) score of 10 or more and a Dermatology Life Quality Index (DLQI) score of more than 10.
- The psoriasis has not responded to standard systematic therapies, including ciclosporin, methotrexate and PUVA (psoralen and long-wave ultraviolet radiation), or the person is intolerant of or has a contraindication to these treatments.
- The manufacturer provides the 90 mg dose (two 45 mg vials) for people who weigh more than 100 kg at the same total cost as for a single 45 mg vial.

The guidance also states that ustekinumab treatment should be stopped in people whose psoriasis has not responded adequately by 16 weeks after starting treatment (defined as either a 75% reduction in the PASI score or a

50% reduction in the PASI score and a 5-point reduction in the DLQI score from when treatment started). In addition, it recommends that when using the DLQI, healthcare professionals should take into account any physical, sensory or learning disabilities, or communication difficulties that could affect the responses to the DLQI and make any adjustments they consider appropriate.

**Patient numbers affected**
Using an estimate of 1.63% for the prevalence of psoriasis in the UK\(^2\) and assuming that 1.1% of people with psoriasis are eligible for treatment with a biological therapy\(^3\), an estimated 7100 people in England would be eligible to receive a biological therapy for their psoriasis.

Clinical opinion suggests that approximately 50%\(^4\) (3550) of these people may actually receive a biological therapy. Of these, an estimated 25% (approximately 890 people) may receive ustekinumab.

**Resource impact**
Because ustekinumab is one of several biological therapies recommended for the treatment of psoriasis, we do not anticipate that its use within the NHS will result in a significant incremental impact on resources.

Table 1 shows the estimated annual drug costs associated with four biological therapies for psoriasis.

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\(^3\) Estimated proportion of people with severe psoriasis eligible for biological therapy obtained from costing templates and reports for TA103 and TA146. Available from: www.nice.org.uk/TA103 and www.nice.org.uk/TA146

\(^4\) Based on clinical expert opinion
### Table 1 Estimated annual maintenance drug cost per patient associated with biological therapies for psoriasis

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Annual recurrent dosage</th>
<th>Estimated unit cost(^a) (£)</th>
<th>Estimated annual drug cost for maintenance therapy(^b) (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etanercept</td>
<td>25 mg twice weekly</td>
<td>89.38</td>
<td>8180(^c)</td>
</tr>
<tr>
<td>Infliximab</td>
<td>5 mg/kg every 8 weeks</td>
<td>419.62</td>
<td>10910</td>
</tr>
<tr>
<td>Adalimumab</td>
<td>40 mg on alternate weeks</td>
<td>357.50</td>
<td>9295</td>
</tr>
<tr>
<td>Ustekinumab</td>
<td>45 or 90 mg every 12 weeks</td>
<td>2147.00</td>
<td>9335</td>
</tr>
</tbody>
</table>

\(^a\) Drug unit costs are from the 'British national formulary' (BNF) 57. Ustekinumab is not listed in BNF 57. The cost of ustekinumab per vial was obtained from the Monthly Index of Medical Specialities (MIMS), April 2009.

\(^b\) The costs listed in table 1 are for the drug cost only. Commissioners would need to take account of administration costs when assessing the local impact. Etanercept, adalimumab and ustekinumab are administered subcutaneously and monitored on an outpatient basis. In the appraisal a requirement of four outpatient visits for maintenance therapy was assumed. Infliximab is administered intravenously and can be administered on either an outpatient or daycase basis which would incur a higher administration cost.

\(^c\) Etanercept should be given intermittently as recommended in TA103. However, there may be variation in the administration of etanercept in clinical practice. TA103 assumed the cost of intermittent etanercept (25 mg) was 74% of the continuous dose. In the appraisal of ustekinumab, an assumption of 88% was used in line with TA146 and this has been used to estimate the annual maintenance cost of etanercept.

The Appraisal Committee concluded that it could not make any specific recommendations on the use of ustekinumab after a person's psoriasis had failed to respond to other biological therapies.

The Committee heard from the clinical specialists that ustekinumab is a new drug that has been given to far fewer people than the other biological therapies, and therefore its long-term safety profile is less certain. Because of this, the clinical specialists considered that ustekinumab may initially be prescribed more cautiously than existing treatments for psoriasis.

The Committee noted that the manufacturer had conducted a mixed treatment comparison to enable a comparison of ustekinumab with all alternative biological therapies. The results from this comparison using the ustekinumab data for all patients suggested a higher probability of a response after treatment with ustekinumab than with etanercept or adalimumab, but a lower probability of a response compared with infliximab.

As a result, savings may arise from the use of ustekinumab through a reduction in the number of people being hospitalised or requiring intensive...
community nursing because their psoriasis has not responded adequately to treatment. However, the incremental cost impact is not anticipated to be significant because there has already been a substantial reduction in hospital admissions as a result of the increasing availability of biological therapies.

Bearing in mind the numbers of patients affected, the costs of the respective therapies and that ustekinumab is one of several biological therapies recommended for the treatment of psoriasis, we do not anticipate a significant change in resource use. Commissioners and providers should take account of their local clinical practice when assessing the financial impact.

The Committee was mindful of the uncertainties in the resource and cost data and the potential methodological limitations of the mixed treatment comparison. The Committee considered that it would be of value to review all of the biological therapies for psoriasis in a multiple technology appraisal.