

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

GUIDANCE EXECUTIVE (GE)

Review of TA199; Etanercept, infliximab, and adalimumab for the treatment of psoriatic arthritis (includes a review of NICE technology appraisal guidance 104 and 125), and TA220; Golimumab for the treatment of psoriatic arthritis

TA199

This guidance was issued in August 2010.

The review date for this guidance is June 2013.

TA220

This guidance was issued in April 2011.

The review date for this guidance is June 2013.

1. Recommendation

The guidance should be transferred to the 'static guidance list'. That we consult on this proposal.

2. Original remit

TA199

To review the Institute's earlier guidance on the clinical and cost-effectiveness of etanercept, infliximab and adalimumab*, in their licensed indications for the treatment of psoriatic arthritis.

* This appraisal will be a review of the following appraisals: NICE Technology Appraisal guidance No. 104 - Etanercept and infliximab for the treatment of psoriatic arthritis, July 2006 and NICE Technology Appraisal guidance No. 125 – Adalimumab for the treatment of psoriatic arthritis, Aug 2007.

TA220

To appraise the clinical and cost-effectiveness of golimumab, within its licensed indication, for the treatment of psoriatic arthritis.

3. Current guidance

Current guidance TA199

1.1 Etanercept, infliximab and adalimumab are recommended for the treatment of adults with active and progressive psoriatic arthritis when the following criteria are met.

- The person has peripheral arthritis with three or more tender joints and three or more swollen joints, **and**
- The psoriatic arthritis has not responded to adequate trials of at least two standard disease-modifying antirheumatic drugs (DMARDs), administered either individually or in combination.

1.2 Treatment as described in 1.1 should normally be started with the least expensive drug (taking into account drug administration costs, required dose and product price per dose). This may need to be varied for individual patients because of differences in the method of administration and treatment schedules.

1.3 Etanercept, adalimumab or infliximab treatment should be discontinued in people whose psoriatic arthritis has not shown an adequate response using the Psoriatic Arthritis Response Criteria (PsARC) at 12 weeks. An adequate response is defined as an improvement in at least two of the four PsARC criteria, (one of which has to be joint tenderness or swelling score) with no worsening in any of the four criteria. People whose disease has a Psoriasis Area and Severity Index (PASI) 75 response at 12 weeks but whose PsARC response does not justify continuation of treatment should be assessed by a dermatologist to determine whether continuing treatment is appropriate on the basis of skin response (see 'Etanercept and efalizumab for the treatment of adults with psoriasis' [NICE technology appraisal guidance 103], 'Infliximab for the treatment of adults with psoriasis' [NICE technology appraisal guidance 134] and 'Adalimumab for the treatment of adults with psoriasis' [NICE technology appraisal guidance 146] for guidance on the use of tumour necrosis factor [TNF] inhibitors in psoriasis).

1.4 When using the PsARC healthcare professionals should take into account any physical, sensory or learning disabilities, or communication difficulties that could affect a person's responses to components of the PsARC and make any adjustments they consider appropriate.

Current guidance TA220

1.1 Golimumab is recommended as an option for the treatment of active and progressive psoriatic arthritis in adults only if:

- it is used as described for other tumour necrosis factor (TNF) inhibitor treatments in Etanercept, infliximab and adalimumab for the treatment of psoriatic arthritis (NICE technology appraisal guidance 199), **and**
- the manufacturer provides the 100 mg dose of golimumab at the same cost as the 50 mg dose.

1.2 When using the Psoriatic Arthritis Response Criteria (PsARC; as set out in NICE technology appraisal guidance 199), healthcare professionals should take into

account any physical, sensory or learning disabilities, or communication difficulties that could affect a person's responses to components of the PsARC and make any adjustments they consider appropriate.

4. Rationale¹

Since the publication of TA199 and TA220, no significant new evidence has been identified that is likely to lead to a change in the current guidance. It is therefore appropriate that TA199 and TA220 should be transferred to the 'static guidance list'.

5. Implications for other guidance producing programmes

There is no proposed or ongoing guidance development that overlaps with this review proposal.

6. New evidence

The search strategy from the original assessment report was re-run on the Cochrane Library, Medline, Medline In-Process and Embase. References from June 2009 onwards were reviewed. Additional searches of clinical trials registries and other sources were also carried out. The results of the literature search are discussed in the 'Summary of evidence and implications for review' section below. See Appendix 2 for further details of ongoing and unpublished studies.

7. Summary of evidence and implications for review

The marketing authorisations for etanercept, infliximab, adalimumab and golimumab for the treatment of psoriatic arthritis have not changed since the publication of NICE technology appraisals (TA) 199 and 220 in August 2010 and April 2011 respectively. The manufacturers have confirmed that there are no proposed extensions to the marketing authorisation for these interventions in the treatment of psoriatic arthritis.

No further technology appraisal guidance for treating psoriatic arthritis has been issued since April 2011, suggesting no new comparator therapies have entered the market. A NICE single technology appraisal (STA) of ustekinumab (Janssen) for treating psoriatic arthritis in patients previously treated with disease modifying anti-rheumatic drugs (DMARDs) or tumour necrosis factor (TNF) inhibitors is currently in progress. Ustekinumab has been studied in the PSUMMIT I and II clinical trials. It is likely that ustekinumab will be considered as a treatment option for people with psoriatic arthritis at the same position of the treatment pathway as the biologic interventions of interest in this review proposal, subject to the assessment of its clinical- and cost-effectiveness. The clinical trials also included patients with at least 5 tender joints and 5 swollen joints, and patients enrolled into PSUMMIT II may have had prior exposure to TNF inhibitors. This may suggest ustekinumab could also be considered as a treatment option after initial biologic treatment for psoriatic arthritis. The STA of ustekinumab is therefore not anticipated to impact the recommendations

¹ A list of the options for consideration, and the consequences of each option is provided in Appendix 1 at the end of this paper

of NICE TA199 and TA220. The earliest anticipated date of guidance publication for the STA of ustekinumab is May 2014.

The current list price of etanercept and infliximab are the same as published in NICE TA199. The current list prices of adalimumab and golimumab have reduced marginally since the publication of NICE TA199 and TA220 respectively (see appendix 2). The manufacturer of golimumab also confirmed that the patient access scheme will continue to be available without any changes (that is, the 100mg dose of golimumab is provided at the same cost as the 50mg dose). It is not anticipated that changes to the cost of treatment are likely to impact NICE TA199 and TA220 because the recommendations specify that 'treatment should normally be started with the least expensive drug (taking into account drug administration costs, required dose and product price per dose)'. It is important to acknowledge that the patents of adalimumab, infliximab and etanercept expire in April 2018, August 2014 and February 2015 respectively [GABI 2011]. This potentially provides the opportunity for increased competition, in the form of biosimilars, to enter the market. Any such biosimilars will be considered through NICE's topic selection function, as appropriate.

NICE TA199 and TA220 recommended etanercept, infliximab, adalimumab and golimumab for treating psoriatic arthritis after trials of 2 conventional DMARDs (see section 1). In the absence of head-to-head comparisons, the clinical evidence for these appraisals came from placebo controlled phase III trials. These included the GO-REVEAL trial (golimumab versus placebo); 2 RCTs comparing etanercept with placebo (Mease 2000 and Mease 2004); 2 RCTs comparing infliximab with placebo (IMPACT and IMPACT 2); and 2 RCTs comparing adalimumab with placebo (ADEPT and Genovese 2007). The Committees in TA199 and TA220 noted that there was insufficient evidence of superiority of any 1 treatment and although the evidence suggested golimumab may be less effective in its anti-arthritic activity, the evidence was not robust enough. Given the lack of conclusive evidence to confirm clinically important differences in the effectiveness between the TNF inhibitors, the Committees concluded that treatment choice should be based on cost. The Committees also noted that in the Assessment Groups economic model, the Health Assessment Questionnaire (HAQ) response had a greater effect on utility than the Psoriasis Area and Severity Index (PASI), indicating that the calculated health-related quality of life benefit was mainly driven by the response in joint symptoms rather than skin disease. It was concluded that the treatments had comparable safety profiles but uncertainty remained in the long-term, it was therefore recommended that registries gathering data on the long-term outcomes specific to psoriatic arthritis were collected.

Since the publication of NICE TA199 and TA220, there is still an absence of evidence from head-to-head comparisons of the TNF inhibitors in people with psoriatic arthritis. The searches did not identify any studies that suggest the recommendations of NICE TA199 and TA220 need updating. A number of studies have been published since NICE 199 and TA220 that support their recommendations.

- A long-term follow-up of the ADEPT study explored the relationship between PASI responses and radiographic progression after 144 weeks of adalimumab treatment [Choy E et al. 2009]. These post-hoc analyses on observed data

suggest that patients who have PASI 50, PASI 75 and PASI 90 responses at 144 weeks (that is, improvement in psoriasis) also have inhibition of radiographic progression.

- Psoriatic arthritis patients treated with etanercept in the open-label Mease 2004 follow-up study achieved significant improvements in physical functioning [Mease PJ et al. 2010]. The improvement was reported to be approximately 10 times that observed in patients treated with placebo and was also maintained for up to 2 years.
- The 52- and 104-week results from the GO-REVEAL extension study are now published in peer review journals [Kavanaugh A et al. 2012a; Kavanaugh A et al. 2012b]. These publications suggest continued clinical efficacy is demonstrated over 2 years and the overall safety profile of golimumab is similar to the other TNF inhibitors. The searches also identified a conference abstract that presented 5 year results from the GO-REVEAL extension study [Kavanaugh A et al. 2012c]. Patient attrition was noted by the authors to be low, with 69% of patients enrolled at week 0 continuing through to week 252. The data presented in the conference abstract suggests golimumab treatment provides long-term maintenance of clinically meaningful responses in the arthritic and skin components of psoriatic arthritis, improved physical function and inhibition of radiographic progression. No apparent differences between the long-term efficacy and safety of the 2 golimumab doses were observed. However, it was acknowledged by the authors that the interpretation of the data is limited due to the treatment changes allowed across the randomised groups of golimumab.

The literature searches did not identify any evidence that addressed the research recommendation of NICE TA199 and TA220 to 'collect further data within registries of patients receiving biological treatments for psoriatic arthritis to obtain information on long-term outcomes, including adverse events', in the UK healthcare setting.

The registered and unpublished trials presented in Appendix 2 are not anticipated to minimise any of the uncertainties noted in NICE TA199 and TA220. A couple of randomised trials are investigating whether patients with psoriatic arthritis (and other spondyloarthropathies) in remission, can maintain the remission with a maintenance dose of TNF inhibitors inferior to the currently recommended (and licenced) dose schedule. The observational studies may provide additional information on the long-term safety of TNF inhibitors, with 1 of the trials analysing the incidence of serious infections over 8 years in the US healthcare setting and another trial analysing the number of subjects with adverse events over a 4 year period in the Canadian healthcare setting. However, these 2 long-term observational studies include patients with psoriatic arthritis, rheumatoid arthritis and ankylosing spondylitis. A 1 year observational study in Belgium is collecting safety data over a 1 year period in psoriatic arthritis patients treated with etanercept. The only UK observational study listed in Appendix 2 is analysing antibody production and whether it affects how TNF inhibitors work, patients enrolled will receive either TNF inhibitor monotherapy or TNF inhibitors in combination with methotrexate. A UK specific study that collects long-term outcomes specifically in the psoriatic population is not presented in Appendix 2. Therefore, the registered and unpublished trials listed in Appendix 2 are

not expected to impact the recommendations or address the uncertainties and research recommendations of NICE TA199 and TA220.

Based on the above information, it is proposed that the guidance in TA199 and TA220 should be transferred to the 'static guidance list'.

8. Implementation

A submission from Implementation is included in Appendix 3.

Data is available on the uptake of adalimumab, etanercept and golimumab prescribed in primary care and hospitals that have been dispensed in the community in England between January 2008 and December 2012. The ePACT data indicates that the use of adalimumab, etanercept and golimumab have increased after the publication of NICE TA199 and TA220, which suggests these interventions are established clinical practice in England.

There is insufficient evidence to make any firm conclusions on the adherence to NICE TA199 and TA220, or whether there is any regional variation in clinical practice in England and Wales.

9. Equality issues

In TA199 and T220, the Committee concluded that, when using the PsARC, healthcare professionals should take into account any physical, sensory or learning disabilities, or communication difficulties that could affect a person's responses to components of the PsARC and make any adjustments they consider appropriate. This potential equality issue was incorporated in the guidance recommendations (see NICE TA199 section 1.4 and NICE TA220 section 1.2).

GE paper sign off: Helen Knight, Associate Director, 29 May 2013

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Appendix 1 – explanation of options

When considering whether to review one of its Technology Appraisals NICE must select one of the options in the table below:

Options	Consequence	Selected – ‘Yes/No’
A review of the guidance should be planned into the appraisal work programme.	A review of the appraisal will be planned into the NICE’s work programme.	No
The decision to review the guidance should be deferred to 2015	NICE will reconsider whether a review is necessary at the specified date.	No
A review of the guidance should be combined with a review of a related technology appraisal.	A review of the appraisal(s) will be planned into NICE’s work programme as a Multiple Technology Appraisal, alongside the specified related technology.	No
A review of the guidance should be combined with a new technology appraisal that has recently been referred to NICE.	A review of the appraisal(s) will be planned into NICE’s work programme as a Multiple Technology Appraisal, alongside the newly referred technology.	No
The guidance should be incorporated into an on-going clinical guideline.	<p>The on-going guideline will include the recommendations of the technology appraisal. The technology appraisal will remain extant alongside the guideline. Normally it will also be recommended that the technology appraisal guidance is moved to the static list until such time as the clinical guideline is considered for review.</p> <p>This option has the effect of preserving the funding direction associated with a positive recommendation in a NICE technology appraisal.</p>	No
The guidance should be updated in an on-going clinical guideline.	<p>Responsibility for the updating the technology appraisal passes to the NICE Clinical Guidelines programme. Once the guideline is published the technology appraisal will be withdrawn.</p> <p>Note that this option does not preserve the funding direction associated with a positive recommendation in a NICE Technology Appraisal. However, if the recommendations are unchanged from the technology appraisal, the technology appraisal can be left in place (effectively the same as incorporation).</p>	No

Options	Consequence	Selected – ‘Yes/No’
The guidance should be transferred to the ‘static guidance list’.	The guidance will remain in place, in its current form, unless NICE becomes aware of substantive information which would make it reconsider. Literature searches are carried out every 5 years to check whether any of the Appraisals on the static list should be flagged for review.	Yes

NICE would typically consider updating a technology appraisal in an ongoing guideline if the following criteria were met:

- i. The technology falls within the scope of a clinical guideline (or public health guidance)
- ii. There is no proposed change to an existing Patient Access Scheme or Flexible Pricing arrangement for the technology, or no new proposal(s) for such a scheme or arrangement
- iii. There is no new evidence that is likely to lead to a significant change in the clinical and cost effectiveness of a treatment
- iv. The treatment is well established and embedded in the NHS. Evidence that a treatment is not well established or embedded may include;
 - Spending on a treatment for the indication which was the subject of the appraisal continues to rise
 - There is evidence of unjustified variation across the country in access to a treatment
 - There is plausible and verifiable information to suggest that the availability of the treatment is likely to suffer if the funding direction were removed
 - The treatment is excluded from the Payment by Results tariff
- v. Stakeholder opinion, expressed in response to review consultation, is broadly supportive of the proposal.

Appendix 2 – supporting information

Relevant Institute work

Published

Psoriasis: The assessment and management of psoriasis (CG153). Published: October 2012

In progress

Ustekinumab for the treatment of active and progressive psoriatic arthritis [ID607]. Expected publication: May 2014

Referred - Qs and CGs

Psoriasis Quality Standard in progress. Expected publication: August 2013

Suspended/terminated

Psoriatic arthritis (moderate to severe) - leflunomide [ID391]. Removed from work programme October 2008.

Details of changes to the indications of the technology

Indication considered in original appraisal	Proposed indication (for this appraisal)
<p>Adalimumab (Humira), Abbvie</p> <p>Adalimumab is licensed for the treatment of active and progressive psoriatic arthritis in adults when the disease has not responded adequately to previous DMARD therapy.</p> <p>The acquisition cost of adalimumab is £357.50 per 40-mg prefilled pen or prefilled syringe (excluding VAT; BNF 58).</p>	<p>Humira is indicated for the treatment of active and progressive psoriatic arthritis in adults when the response to previous disease-modifying anti-rheumatic drug therapy has been inadequate. Humira has been shown to reduce the rate of progression of peripheral joint damage as measured by X-ray in patients with polyarticular symmetrical subtypes of the disease (see Section 5.1) and to improve physical function.</p> <p>Source: SPC (March 2013)</p> <p>Net price 40-mg prefilled pen or prefilled syringe = £352.14;</p> <p>Source: BNF April 2013</p> <p>The manufacturer has no proposed extensions to the current licence</p> <p>Source: letter to NICE (05/03/12)</p>

Indication considered in original appraisal	Proposed indication (for this appraisal)
<p>Etanercept (Enbrel), Pfizer</p> <p>Etanercept is licensed for the treatment of active and progressive psoriatic arthritis in adults whose disease has not responded adequately to previous DMARD therapy.</p> <p>The acquisition cost of etanercept is £89.38 per 25-mg prefilled syringe or 25-mg vial with powder for reconstitution (with solvent), and £178.75 per 50-mg prefilled syringe (excluding VAT; BNF 58)</p>	<p>Treatment of active and progressive psoriatic arthritis in adults when the response to previous disease-modifying antirheumatic drug therapy has been inadequate. Enbrel has been shown to improve physical function in patients with psoriatic arthritis, and to reduce the rate of progression of peripheral joint damage as measured by X-ray in patients with polyarticular symmetrical subtypes of the disease.</p> <p>Source: SPC (March 2013)</p> <p>Net price 25-mg prefilled syringe = £89.38; 50-mg prefilled pen or prefilled syringe = £178.75</p> <p>Source: BNF April 2013</p> <p>The manufacturer has no proposed extensions to the current licence</p> <p>Source: letter to NICE (15/03/113)</p>
<p>Golimumab (Simponi), Merck, Sharp and Dohme</p> <p>Golimumab has a marketing authorisation for the treatment of active and progressive psoriatic arthritis (alone or in combination with methotrexate) in adults when the response to previous disease-modifying antirheumatic drug (DMARD) therapy has been inadequate.</p> <p>The cost of golimumab is £774.58 for a 50 mg pre-filled injection pen (excluding VAT, 'MIMS' February 2011 edition)</p> <p>The manufacturer of golimumab has agreed a patient access scheme with the Department of Health, in which the 100 mg dose of golimumab will be available to the NHS at the same cost as the 50 mg dose</p>	<p>Simponi, alone or in combination with MTX, is indicated for the treatment of active and progressive psoriatic arthritis in adult patients when the response to previous disease-modifying anti-rheumatic drug (DMARD) therapy has been inadequate. Simponi has been shown to reduce the rate of progression of peripheral joint damage as measured by X-ray in patients with polyarticular symmetrical subtypes of the disease (see section 5.1) and to improve physical function.</p> <p>Source: SPC (December 2012)</p> <p>Net price 50-mg prefilled pen or prefilled syringe = £762.97.</p> <p>Source: BNF April 2013</p> <p>Merck Sharp and Dohme propose to continue the patient access scheme without any changes. As of February 2013, PAS uptake was 6.3% of the total number of patients receiving golimumab.</p> <p>Source: letter to NICE (18/03/13)</p> <p>The manufacturer has no proposed extensions to the current licence</p> <p>Source: letter to NICE (18/03/13)</p>

Indication considered in original appraisal	Proposed indication (for this appraisal)
<p>Infliximab (Remicade), Merck, Sharp and Dohme</p> <p>Infliximab is licensed for the treatment of active and progressive psoriatic arthritis in adults when the disease has not responded adequately to previous DMARD therapy. Infliximab should be administered: in combination with methotrexate, or alone in people who show intolerance to methotrexate or for whom methotrexate is contraindicated.</p> <p>The acquisition cost of infliximab is £419.62 per 100-mg vial with powder for reconstitution (excluding VAT; BNF 58)</p>	<p>Remicade is indicated for treatment of active and progressive psoriatic arthritis in adult patients when the response to previous DMARD therapy has been inadequate. Remicade should be administered: in combination with methotrexate; or alone in patients who show intolerance to methotrexate or for whom methotrexate is contraindicated</p> <p>Remicade has been shown to improve physical function in patients with psoriatic arthritis, and to reduce the rate of progression of peripheral joint damage as measured by X-ray in patients with polyarticular symmetrical subtypes of the disease</p> <p>Source: SPC (January 2013)</p> <p>Net price 100-mg vial = £419.62</p> <p>Source: BNF April 2013</p> <p>The manufacturer has no proposed extensions to the current licence</p> <p>Source: letter to NICE (18/03/13)</p>

Details of new products

Drug (manufacturer)	Details (phase of development, expected launch date,)
Apremilast (CC10004), Celgene	Phase III clinical trials [REDACTED]
Secukinumab, Novartis	Phase III clinical trials [REDACTED]
Certolizumab pegol (Cimzia), UCB Pharma	Marketing authorisation application filed with EMEA February 2013 [REDACTED]
Ixekizumab (LY2439821), Eli Lilly	Phase III clinical trials started October 2012 [REDACTED]
Inflectra (infliximab biosimilar), Hospira	Phase III clinical trials

Registered and unpublished trials

Trial name and registration number	Details
<p>REmoval of Treatment for patients in REmission in psoriatic ArThritis - Feasibility study</p> <p>RETREAT</p> <p>UKCRN 13690</p> <p>UKCRN 13916</p>	<p>A randomised controlled trial to compare withdrawal of therapy versus continuing therapy in low disease states in psoriatic arthritis</p> <p>Status: open</p> <p>Enrolment: 30</p> <p>Closure: August 2013</p>
<p>Evaluation of clinical value of standardized protocol for dose-reduction in patients with spondylarthropathies and clinical remission with anti-tnf therapy: open-label, controlled, randomized, multicenter trial</p> <p>Phase IV</p> <p>NCT01604629</p>	<p>Purpose: to demonstrate that patients with spondylarthropathies in remission under antiTNF therapy, can maintain the remission with a maintenance dose inferior to the currently recommended dose schedule</p> <p>Enrolment: 190</p> <p>Start date: July 2012</p> <p>Estimated completion: September 2015</p>

Observational studies

Trial name and registration number	Details
<p>Investigation of Factors Influencing Psoriatic Arthritis and Psoriasis Response to Therapy with Biologic Drugs</p> <p>OUTPASS</p> <p>UKCRN 13910</p>	<p>Purpose: to study patients with psoriasis and psoriatic arthritis to assess whether antibodies affect how drugs work</p> <p>Status: in set up pending approval</p> <p>Enrolment: 300</p> <p>Closure date: April 2014</p>
<p>Golimumab Safety and Surveillance Program Using the Ingenix NHI Database</p> <p>NCT01081717</p>	<p>Prospective, observational cohort using the US Health Insurance claims database to estimate the incidence of serious outcomes in patients with rheumatoid arthritis, psoriatic arthritis, or ankylosing spondylitis treated with golimumab and other types of biological and systemic non biological treatments</p> <p>Enrolment: 1000</p> <p>Start date: April 2009</p> <p>Estimated completion: September 2017</p>

Trial name and registration number	Details
<p>A Post-Marketing Surveillance For Safety And Adherence To Treatment Of Enbrel In Adults With Psoriatic Arthritis In Belgium</p> <p>PROVE</p> <p>NCT00938015</p>	<p>Enrolment: 305</p> <p>Start date: October 2004</p> <p>Estimated completion: April 2012</p>
<p>Biologic Treatment Registry Across Canada) Rheumatology (Rheumatoid Arthritis, Ankylosing Spondylitis, Psoriatic Arthritis</p> <p>BioTRAC</p> <p>NCT00741793</p>	<p>Enrolment: 2000</p> <p>Start date: October 2010</p> <p>Estimated completion: December 2014</p>

Additional information

British Society for Rheumatology (June 2012) Guidelines for the treatment of psoriatic arthritis with biologics.

European League Against Rheumatism (2012) European League Against Rheumatism recommendations for the management of psoriatic arthritis with pharmacological therapies.

References

British National Formulary 65. Accessed 29th April 2013. Available from: <http://www.bnf.org/bnf/index.htm>

Choy E, Gladman D, Mease PJ et al. (2009). In patients with psoriatic arthritis receiving adalimumab, improvement in psoriasis is associated with long-term inhibition of radiographic progression. *Rheumatology (United Kingdom)* 48: i56-i57.

Generics and Biosimilars Intitatives [GABI] (2011). US\$54 billion worth of biosimilar patents expiring before 2020. Accessed 30th April 2013. Available from: <http://www.gabionline.net/Biosimilars/Research/US-54-billion-worth-of-biosimilar-patents-expiring-before-2020>

Kavanaugh A, van der Heijde D, McInnes IB et al. (2012a). Golimumab in psoriatic arthritis: one-year clinical efficacy, radiographic, and safety results from a phase III, randomized, placebo-controlled trial. *Arthritis & Rheumatism* 64 (8): 2504-2517.

Kavanaugh A, McInnes I, Krueger G et al. (2012b). Early and sustained remission associated with normalized physical function, health-related quality of life & significantly improved productivity in patients with active psoriatic arthritis treated with golimumab: 2-year data from phase III GO-REVEAL trial. *Journal of Rheumatology* 39 (8): 1736-.

Kavanaugh A, van der Heijde D, McInnes IB et al. (2012c). 5 Year safety, efficacy, and radiographic data in patients with active psoriatic arthritis treated with golimumab: Results from the long- term extension of a randomized, placebo-controlled study. *Arthritis and rheumatism* 64: S938-S939.

Mease PJ, Woolley JM, Singh A et al. (2010). Patient-reported outcomes in a randomized trial of etanercept in psoriatic arthritis. *Journal of Rheumatology* 37 (6): 1221-7.

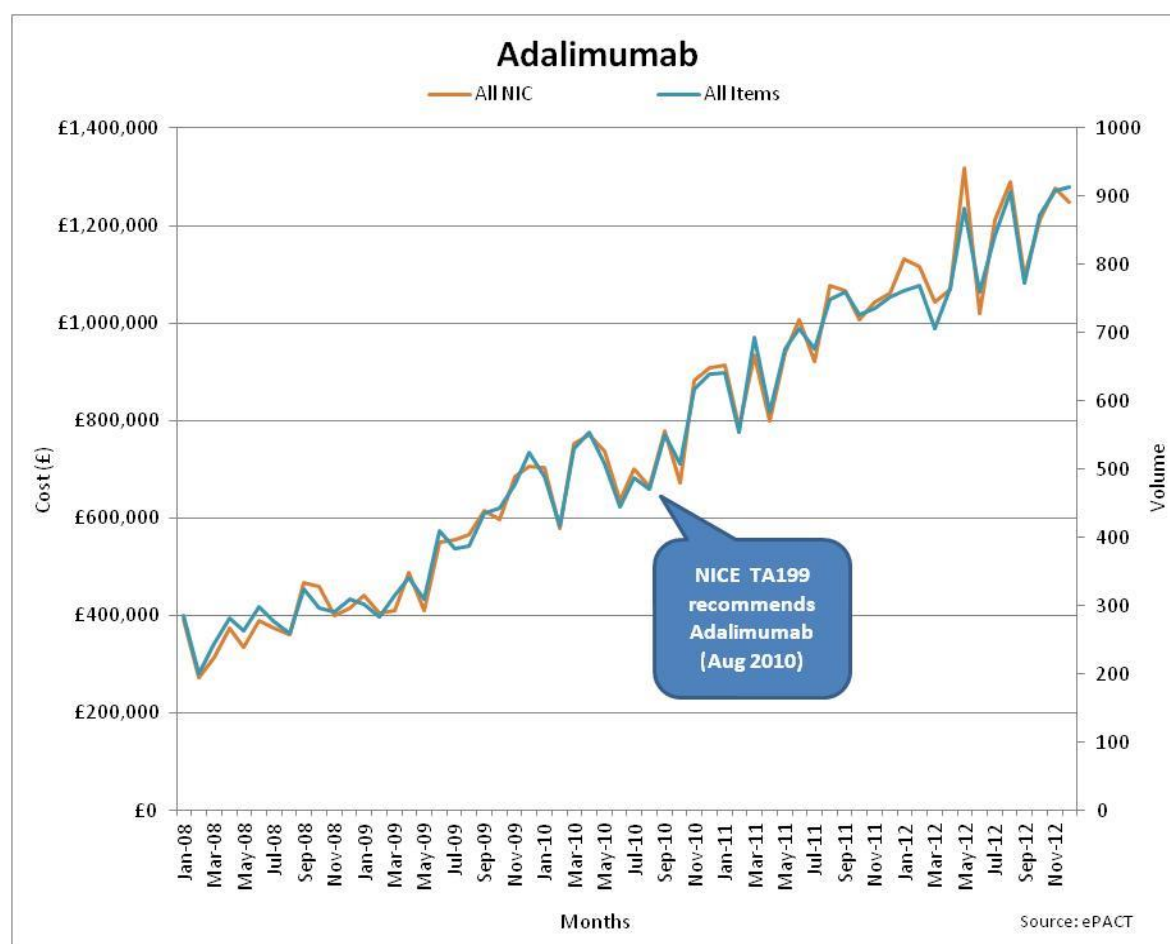
Appendix 3 – Implementation submission

1 Routine healthcare activity data

1.1 ePACT data

Figure 1 below presents ePACT data on the net ingredient cost (NIC) and the number of prescription items of Adalimumab prescribed in primary care and hospitals that have been dispensed in the community in England between January 2008 and December 2012. In addition to the NICE guidance indicated in Figure 1, NICE has published other Technology Appraisal guidance on Adalimumab for indications other than Psoriatic arthritis².

Figure 1 Net ingredient cost and volume of Adalimumab prescribed in primary care and hospitals that have been dispensed in the community



² NICE TA146 Psoriasis – adalimumab (June 2008)
NICE TA130 Rheumatoid arthritis – adalimumab (October 2007)
NICE TA143 Ankylosing spondylitis – adalimumab (May 2008)
NICE TA187 Crohn's disease – adalimumab (May 2010)

Figure 2 presents the net ingredient cost (NIC) and the number of prescription items of Etanercept prescribed in primary care and hospitals that have been dispensed in the community in England between January 2008 and December 2012. In addition to the NICE guidance indicated in Figure 2, NICE has published other Technology Appraisal guidance on Etanercept for indications other than Psoriatic arthritis³.

Figure 2 Net ingredient cost and volume of Etanercept prescribed in primary care and hospitals that have been dispensed in the community

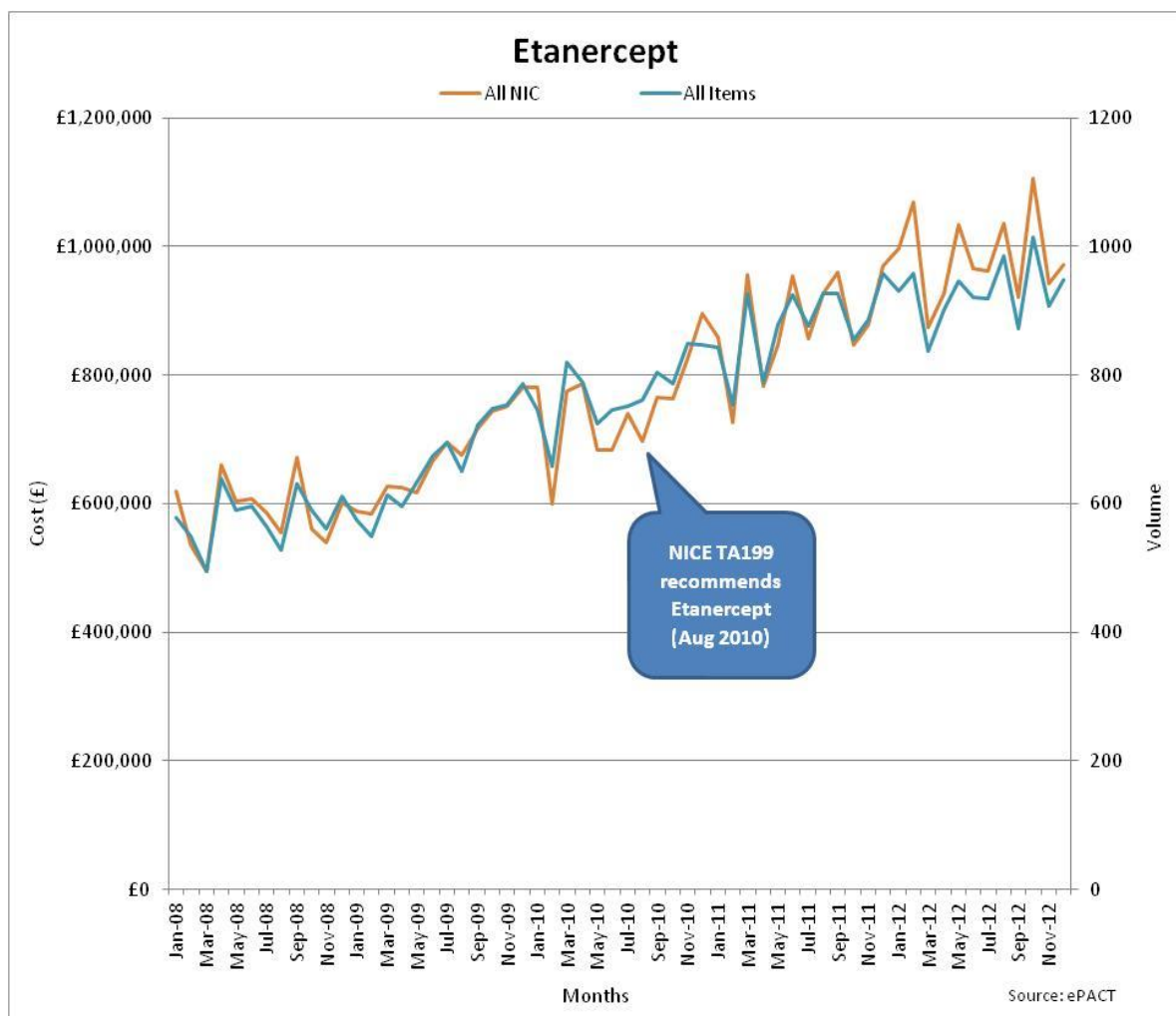
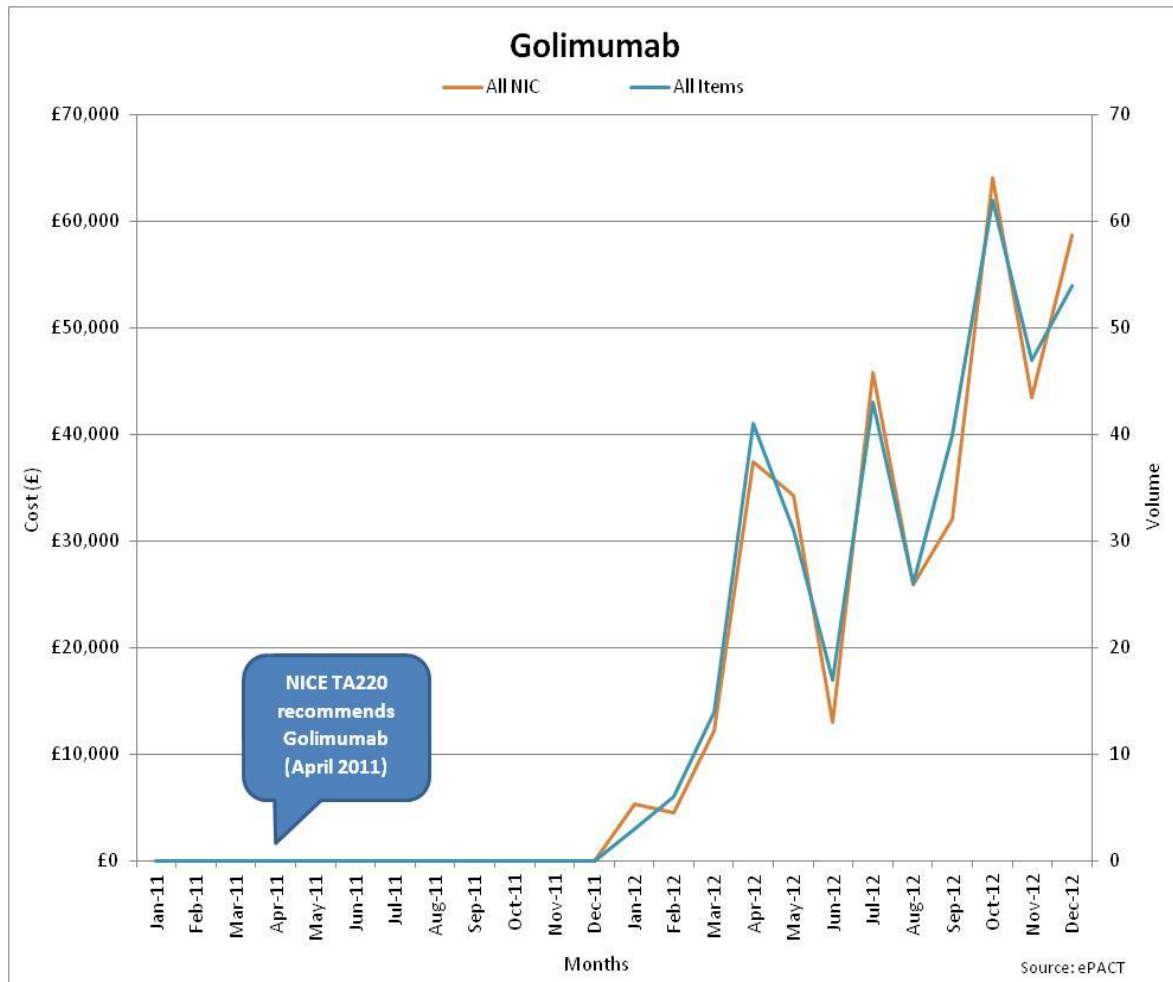


Figure 3 presents the net ingredient cost (NIC) and the number of prescription items of Golimumab prescribed in primary care and hospitals that have been dispensed in the community in England between January 2008 and December 2012. In addition

³ NICE TA103 Psoriasis – etanercept (July 2006)
 NICE TA143 Ankylosing spondylitis – etanercept (May 2008)
 NICE TA35 Arthritis (juvenile idiopathic) –etanercept (March 2002)
 NICE TA130 Rheumatoid arthritis – etanercept (October 2007)

to the NICE guidance indicated in Figure 3, NICE has published other Technology Appraisal guidance on Golimumab for indications other than Psoriatic Arthritis⁴.

Figure 3 Net ingredient cost and volume of Golimumab prescribed in primary care and hospitals that have been dispensed in the community



ePACT data on the cost and volume of infliximab was zero, suggesting that this drug is not prescribed in primary care or by hospitals for dispensing in the community.

2 Implementation studies from published literature

Information is taken from the uptake database ([ERNIE](#)) website.

2.1 Richards, M (2010) [Extent and causes of international variation in drug usage: A report for the Secretary of State for Health by Professor Sir Mike Richards CBE](#)

NICE TA225 Rheumatoid arthritis – Golimumab (June 2011)
 NICE TA233 Ankylosing spondylitis – Golimumab (August 2011)

This report looks at medicines usage between countries, using IMS Health data. The WHO defined daily dose or the maximum or prescribed daily dose was used to measure usage. Results rank the UK relative to other countries usage and present calculations showing how close or otherwise the UK is to the average use across groups of other countries. It should be noted that countries other than the UK would not be expected to adhere to NICE guidance making comparisons between countries not possible.

2.2 All Wales Medicines Strategy Group (2011) [Monitoring of AWMSG recommendations](#)

This paper covers medicines that have been recommended by the All Wales Medicines Strategy Group (AWMSG) for use in NHS Wales. Five of these medicines, Adalimumab, Teriparatide, Topotecan Hydrochloride, Bortezomib and Docetaxel are also covered by a NICE Technology Appraisal. The report includes hospital and homecare usage data for three of these drugs, Adalimumab, Teriparatide, Topotecan Hydrochloride.

3 Qualitative input from the field team

The implementation field team have recorded the following feedback in relation to this guidance:

Nothing to add at this time.