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Cetuximab for the treatment of locally advanced squamous cell cancer of the head and neck

**This guidance was developed using the
single technology appraisal process**

NICE technology appraisal guidance 145
Cetuximab for the treatment of locally advanced squamous cell cancer of the head and neck

Ordering information

You can download the following documents from www.nice.org.uk/TA145

- The full guidance (this document).
- A quick reference guide for healthcare professionals.
- Information for people with locally advanced squamous cell cancer of the head and neck and their carers ('Understanding NICE guidance').
- Details of all the evidence that was looked at and other background information.

For printed copies of the quick reference guide or 'Understanding NICE guidance', phone NICE publications on 0845 003 7783 or email publications@nice.org.uk and quote:

- N1608 (quick reference guide)
- N1609 ('Understanding NICE guidance').

This guidance is written in the following context

This guidance represents the view of the Institute, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way which would be inconsistent with compliance with those duties.

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This guidance was developed using the single technology appraisal (STA) process

1 Guidance

- 1.1 Cetuximab in combination with radiotherapy is recommended as a treatment option only for patients with locally advanced squamous cell cancer of the head and neck whose Karnofsky performance-status score is 90% or greater and for whom all forms of platinum-based chemoradiotherapy treatment are contraindicated.
- 1.2 Patients currently receiving cetuximab in combination with radiotherapy for the treatment of locally advanced squamous cell cancer of the head and neck who do not meet the criteria outlined in section 1.1 should have the option to continue therapy until they and their clinicians consider it appropriate to stop.
- 1.3 When using Karnofsky performance-status score, clinicians should be mindful of the need to secure equality of access to treatment for patients with disabilities. Clinicians should bear in mind that people with disabilities may have difficulties with activities of daily living that are unrelated to their prognosis with respect to cancer of the head and neck. In such cases clinicians should make appropriate judgements of performance status taking into account the person's usual functional capacity and requirement for assistance with activities of daily living.

2 The technology

- 2.1 Cetuximab (Erbix, Merck Pharmaceuticals) is a chimeric immunoglobulin G monoclonal antibody that competes for epidermal growth factor receptor (EGFR) binding sites on the external surface of the cell membrane. Binding of cetuximab to EGFR prevents activation of tyrosine kinase within cells, eventually resulting in apoptosis. Cetuximab, in combination with radiotherapy,

is licensed for the treatment of patients with locally advanced squamous cell cancer of the head and neck. For further information, see the summary of product characteristics (SPC).

- 2.2 The most common side effects of cetuximab are mild or moderate infusion-related reactions such as fever, chills, nausea, vomiting, headache, dizziness or dyspnoea that occur soon after the first cetuximab infusion. Skin reactions develop in more than 80% of patients and mainly present as an acne-like rash or, less frequently, as pruritus, dry skin, desquamation, hypertrichosis or nail disorders (for example, paronychia). The majority of skin reactions develop within the first 3 weeks of therapy. For full details of side effects and contraindications, see the SPC.
- 2.3 The acquisition cost of cetuximab is £136.50 for a 5-mg/ml, 20-ml vial (excluding VAT; 'British national formulary', edition 55). The initial dose is 400 mg/m² body surface area. Subsequent weekly doses are 250 mg/m² each. A course of treatment can range from 2 to 8 weeks. Assuming a body surface area range of 1.6 m² to 1.8 m², the drug cost of a course of treatment comprising two to eight cycles is £4778 to £5870. Costs may vary in different settings because of negotiated procurement discounts.

3 The manufacturer's submission

The Appraisal Committee (appendix A) considered evidence submitted by the manufacturer of cetuximab and a review of this submission by the Evidence Review Group (ERG; appendix B). The Committee further considered evidence submitted by consultees and commentators requested by the Institute after the appeal.

- 3.1 The manufacturer's submission approached the decision problem by comparing cetuximab plus radiotherapy with radiotherapy alone. The manufacturer specified that the population under consideration consisted of people with locally advanced squamous cell cancer of

the head and neck for whom chemotherapy is considered inappropriate but for whom radiotherapy is suitable. The outcome measures specified in the decision problem were duration of locoregional control, overall survival, progression-free survival and safety.

- 3.2 The manufacturer's submission presented evidence on the clinical effectiveness of cetuximab plus radiotherapy based on a single randomised controlled trial (RCT; the Bonner trial) that compared cetuximab plus radiotherapy with radiotherapy alone in people with stage III or IV non-metastatic squamous cell cancer of the oropharynx, hypopharynx or larynx. Criteria for eligibility included medical suitability for definitive radiotherapy, a Karnofsky performance-status score of at least 60%, and normal haematopoietic, hepatic and renal function. Patients were not included in the trial if they had undergone surgery or had previously received radiotherapy for head and neck cancer. The primary outcome measure was the duration of control of locoregional disease. The secondary endpoints were overall survival, progression-free survival, response rate and safety.
- 3.3 Final analyses of the trial showed that the 211 people in the cetuximab plus radiotherapy arm had a longer median duration of locoregional control than the 213 people in the radiotherapy-alone arm (24.4 versus 14.9 months, $p = 0.005$, hazard ratio [HR] 0.68, 95% confidence interval [CI] 0.52 to 0.89) and greater median overall survival (49.0 versus 29.3 months, $p = 0.03$, HR 0.74, 95% CI 0.57 to 0.97).
- 3.4 The manufacturer's submission presented a de novo economic analysis that compared cetuximab plus radiotherapy with radiotherapy alone. The model used individual patient data from the RCT to estimate costs and health effects during the trial period for each patient. When trial observations were censored, the model extrapolated costs and health effects.

- 3.5 The base-case analysis compared cetuximab plus radiotherapy with radiotherapy alone and resulted in an incremental cost-effectiveness ratio (ICER) of £6400 per quality-adjusted life year (QALY) gained. The manufacturer undertook a univariate sensitivity analysis, which demonstrated that the model was not sensitive to change when assessing the effect of uncertainty in a variety of inputs. Relatively large variability was observed when the timeframe of the analysis changed from a lifetime to the period of the trial follow-up, resulting in an ICER of £20,000 per QALY gained.
- 3.6 The ERG reviewed the evidence on clinical and cost effectiveness submitted by the manufacturer. The ERG judged that the one trial included in the manufacturer's submission was well conducted and that the results for the primary endpoints appeared robust. However, the ERG noted that the majority of patients in the trial population had a good performance status (Karnofsky performance-status score ranged from 60% to 100% but was most commonly 90%), and chemotherapy would be expected to be suitable for them. Therefore, the population of the trial did not match the population described in the decision problem, that is, patients for whom chemoradiotherapy is considered inappropriate. Furthermore, there are differences between the radiotherapy regimens used in the trial and those most commonly used in UK clinical practice.
- 3.7 The ERG reviewed the economic model and identified a number of concerns. The most important of these was that the only RCT informing the economic analysis (the Bonner trial) did not match the patient population specified in the manufacturer's decision problem. The manufacturer provided a set of possible criteria for defining patients for whom chemoradiotherapy is inappropriate, based on discussions with a small number of oncologists. In addition, the manufacturer was asked to provide information on the number of

patients in the trial for whom chemoradiotherapy was considered inappropriate. However, the manufacturer stated that it was unable to provide analyses based on these criteria as the RCT was not designed or statistically powered to assess subgroups of patients for whom chemoradiotherapy may be considered inappropriate.

- 3.8 In addition, the ERG identified a series of issues and uncertainties about the methods for extrapolation of the trial data, assessment of health-related quality of life (HRQoL), and estimation of resource use and costs. The ERG concluded that the methods used were probably appropriate but was unable to determine, in the majority of cases, the likely influence of using alternative methods on the results of the economic model. However, the ERG concluded that altering the method of extrapolation would be unlikely to cause the ICER to increase to above £20,000.
- 3.9 The ERG undertook additional work to examine the robustness of the base-case results to the assumptions made in the manufacturer's cost-effectiveness model about HRQoL, resource use and cost. The ERG concluded that any inaccuracies would have to be very large to have a material effect on the conclusions of the manufacturer's cost-effectiveness analysis.
- 3.10 The ERG felt that although the economic analyses undertaken by the manufacturer demonstrated that cetuximab in combination with radiotherapy was cost effective compared with radiotherapy alone under a broad range of different assumptions (assuming a threshold of £20,000 per QALY), the cost-effectiveness estimates might not be directly applicable to the population specified in the manufacturer's decision problem (that is, patients for whom chemoradiotherapy is considered inappropriate). This was because the clinical study on which the economic analysis was based included a substantial proportion of patients for whom chemoradiotherapy would be considered suitable.

- 3.11 Following an appeal hearing, the Appeal Panel requested that the manufacturer provide subgroup survival data (derived from the Bonner trial) for each of the separate Karnofsky performance-status score subgroups (Karnofsky performance-status scores of 100%, 90%, 80%, 70% and less than 70%). The manufacturer stated that the number of patients in some of the subgroups was small (numbers ranged from 12 to 91), and this should be taken into consideration when interpreting these data. For patients with Karnofsky performance-status scores of 100% and 90%, the survival HRs were in favour of cetuximab plus radiotherapy over radiotherapy alone (HR 0.61, 95% CI 0.28 to 1.31, and HR 0.58, 95% CI 0.39 to 0.88 for Karnofsky performance-status scores of 100% and 90%, respectively). For patients with Karnofsky performance-status scores of 80%, 70% and less than 70%, the survival HRs were in favour of radiotherapy alone over cetuximab plus radiotherapy (HR 1.11, 95% CI 0.69 to 1.77; HR 1.22, 95% CI 0.53 to 2.78; and HR 3.41, 95% CI 0.65 to 17.7, respectively).
- 3.12 The manufacturer was further asked by the Appeal Panel to provide cost-effectiveness estimates for the subgroup analyses described in section 3.11. The analyses were conducted using the manufacturer's original cost-effectiveness model. The manufacturer's analysis gave ICERs for cetuximab in combination with radiotherapy versus radiotherapy alone of £13,151 and £4,467 per additional QALY gained for patients with Karnofsky performance-status scores of 100% and 90%, respectively. For patients with Karnofsky performance-status scores of 70%, radiotherapy alone dominated cetuximab in combination with radiotherapy (that is, radiotherapy alone was more effective in terms of QALYs gained and was less expensive). For patients with Karnofsky performance-status scores of 80% and less than 70%, the manufacturer reported ICERs for cetuximab in combination with

radiotherapy versus radiotherapy alone of £58,200 and £37,000 per additional QALY gained, respectively.

3.13 Following the appeal hearing, the Institute invited the manufacturer and consultees and commentators to provide or highlight further evidence on the efficacy of carboplatin monotherapy in combination with radiotherapy, and on the safety or toxicity of carboplatin with fluorouracil and radiotherapy in patients with locally advanced squamous cell cancer of the head and neck. The manufacturer undertook a literature review and identified 22 studies on the efficacy of carboplatin monotherapy and radiotherapy, none of which were phase III studies or meta-analyses. Six of the 22 studies reported median overall survival estimates, which ranged from 6.7 months to 30 months. The manufacturer considered the median overall survival estimate of 30 months reported by Jeremic and colleagues (n = 53) to be the most robust. The manufacturer further identified nine published studies on the efficacy and safety of carboplatin with fluorouracil and radiotherapy, of which three were phase III trials. The phase III studies reported median overall survival estimates of 23 months, 20 months and 19 months (n = 113, 109 and 64, respectively), and haematological toxicities (grade 3 or 4 acute toxicities) of 23% and 29.5% (n = 113 and 64, respectively). Consultees highlighted that there was little published evidence on the efficacy of carboplatin-based chemoradiotherapy compared with cisplatin-based chemoradiotherapy or with radiotherapy alone, but that carboplatin-based chemoradiotherapy can be used as a treatment for patients for whom cisplatin-based chemoradiotherapy is not an option.

3.14 Full details of all the evidence are in the manufacturer's submission and the ERG report, which are available from www.nice.org.uk/TA145

4 Consideration of the evidence

- 4.1 The Appraisal Committee reviewed the data available on the clinical and cost effectiveness of cetuximab, having considered evidence on the nature of the condition and the value placed on the benefits of cetuximab by people with locally advanced squamous cell cancer of the head and neck, those who represent them, and clinical specialists. It was also mindful of the need to take account of the effective use of NHS resources.
- 4.2 The Committee considered that the decision problem described in the manufacturer's submission was reasonable, but noted that the population specified excluded people for whom chemotherapy is suitable. Therefore the decision problem did not reflect the entire population of people with locally advanced squamous cell cancer of the head and neck for whom cetuximab might be considered as a treatment option according to its licensed indication.
- 4.3 The Committee considered current UK clinical practice in the treatment of locally advanced squamous cell cancer of the head and neck. It heard from the clinical specialist who attended the meeting that chemoradiotherapy is the standard care for patients with stage III and IV squamous cell cancer of the head and neck. However, there are patients for whom chemoradiotherapy is considered inappropriate (for example, patients with co-existing medical conditions and poor performance status).
Chemoradiotherapy carries a high risk of adverse effects and patients should be willing and fit enough to be treated. The clinical specialist and patient experts were of the opinion that for patients whose condition required an alternative to chemoradiotherapy, cetuximab plus radiotherapy was a useful option because of its relatively low toxicity profile compared with chemotherapy.
- 4.4 The Committee heard from the clinical specialist that there is considerable variation in clinical practice across the UK. There are

no clear definitions or criteria for patients for whom chemoradiotherapy is considered inappropriate, and there is variation in the selection of initial treatment modality (surgery or chemoradiotherapy), radiation dose intensities and the means of delivery of chemotherapy. More intensive radiotherapy regimens require suitable infrastructure and patients may need to attend hospital all day (which some are unable to do).

4.5 The Committee considered the evidence on the clinical effectiveness of cetuximab in combination with radiotherapy for the treatment of locally advanced squamous cell cancer of the head and neck. It noted that there was only one relevant RCT that compared cetuximab plus radiotherapy with radiotherapy alone in people with non-resected disease (the Bonner trial). The Committee noted that the trial had started at a time when radiotherapy rather than chemoradiotherapy was the standard treatment. The Committee accepted that cetuximab with radiotherapy had been shown to be more effective than radiotherapy alone in the population represented in the trial.

4.6 The Committee noted that there were no trials that compared cetuximab plus radiotherapy directly with any platinum-based chemoradiotherapy. The Committee understood that chemoradiotherapy is considered to be standard treatment for patients unless there are reasons to contraindicate its use, and that cetuximab plus radiotherapy might have advantages over chemoradiotherapy in terms of reduced toxicity. However, the Committee was not presented with any evidence comparing cetuximab plus radiotherapy with chemoradiotherapy on which an estimate of the clinical and cost effectiveness of cetuximab in combination with radiotherapy could be based. Therefore the Committee was unable to make any recommendations on its use as an alternative to chemoradiotherapy.

- 4.7 The Committee considered the use of cetuximab in combination with radiotherapy in the population specified in the manufacturer's decision problem, that is, the subgroup of patients for whom chemoradiotherapy was considered to be unsuitable by the manufacturer. The Committee noted that the population in the relevant RCT was relatively fit: more than two thirds had a Karnofsky performance-status score of 90% or above and all had normal haematopoietic, hepatic and renal function. The manufacturer was unable to provide information on the number of patients in the RCT for whom chemoradiotherapy would have been inappropriate, or on the effectiveness of cetuximab plus radiotherapy in this subgroup.
- 4.8 The Committee considered that patients with lower Karnofsky performance-status scores would form most, if not all, of the population for whom chemoradiotherapy would be considered inappropriate in clinical practice. The Committee discussed the subgroup analyses of the median overall survival data according to Karnofsky performance-status scores provided by the manufacturer and reported in the 'European public assessment report' published by the European Medicines Agency. Although recognising the difficulties in interpreting the subgroup analyses, the Committee noted that no clinical benefit had been demonstrated for cetuximab in combination with radiotherapy in patients with a Karnofsky performance-status score of 80% or less. The Committee concluded that given the absence of clinical benefit (albeit with wide confidence intervals) it could not make the subgroup of patients with Karnofsky performance-status scores of 80% or less the basis for a positive recommendation to use cetuximab in combination with radiotherapy. Indeed, the Committee noted that the 'European public assessment report' stated that the 'overall impression of all subgroup analyses is that the add-on effect of cetuximab tends to be small or absent irrespective of outcome

measure in patients with poor prognosis (estimated from median overall survival)'.

4.9 The Committee then considered patients with a Karnofsky performance-status score of 90% or greater and explored situations in which chemoradiotherapy might be unsuitable for them. The Committee reviewed the criteria proposed by consultees for identifying patients with good performance status and for whom cisplatin-based chemoradiotherapy would be inappropriate. It noted from consultees that some patients who are unable to tolerate the nephrotoxicity, ototoxicity and fluid overload from cisplatin-based chemoradiotherapy prefer carboplatin-based chemoradiotherapy. The Committee was made aware by consultees that although carboplatin does not have a UK marketing authorisation for the treatment of locally advanced squamous cell cancer of the head and neck, carboplatin-based combination regimens have been studied in this condition and are sometimes used to treat this condition in UK clinical practice. However, the Committee also heard that carboplatin-based regimens are associated with haematological adverse effects, particularly myelosuppression. The Committee concluded that although carboplatin-based chemoradiotherapy is a treatment option for some patients for whom cisplatin-based chemoradiotherapy is contraindicated, it was possible that there are some patients with good Karnofsky performance-status scores for whom any type of platinum-based chemoradiotherapy is contraindicated. The Committee accepted that the results presented for patients with Karnofsky performance-status scores of 90% or greater indicated that cetuximab in combination with radiotherapy would be more effective than radiotherapy alone in this subgroup.

4.10 The Committee considered the ICER presented by the manufacturer in its original submission and the ERG's original comments. The Committee noted that the ICER of £6400 for

cetuximab in combination with radiotherapy versus radiotherapy alone was robust to the main sensitivity analyses. The Committee considered the ICERs presented by the manufacturer for each Karnofsky performance-status score subgroup separately. It noted that the ICERs for patients with a score of 90% or greater were favourable and similar to the overall estimate in the base case. The Committee was persuaded that although there was uncertainty about the number of patients within the subgroups who would have met the criteria to receive chemoradiotherapy, cetuximab in combination with radiotherapy is cost effective for patients with a Karnofsky performance-status score of 90% or greater and for whom chemoradiotherapy is not an option. However, for those with a Karnofsky performance-status score of 80% or less, the HR for survival did not favour cetuximab and therefore the ICERs were unfavourable. The Committee therefore was unable to recommend cetuximab for people with low performance status.

Summary of the considerations

- 4.11 The Committee concluded that cetuximab in combination with radiotherapy is clinically and cost effective in patients with locally advanced squamous cell cancer of the head and neck who have a Karnofsky performance-status score of 90% or greater and for whom platinum-based chemoradiotherapy treatment is contraindicated.

5 Implementation

- 5.1 The Healthcare Commission assesses the performance of NHS organisations in meeting core and developmental standards set by the Department of Health in 'Standards for better health' issued in July 2004. The Secretary of State has directed that the NHS provides funding and resources for medicines and treatments that have been recommended by NICE technology appraisals normally within 3 months from the date that NICE publishes the guidance.

Core standard C5 states that healthcare organisations should ensure they conform to NICE technology appraisals.

5.2 'Healthcare standards for Wales' was issued by the Welsh Assembly Government in May 2005 and provides a framework both for self-assessment by healthcare organisations and for external review and investigation by Healthcare Inspectorate Wales. Standard 12a requires healthcare organisations to ensure that patients and service users are provided with effective treatment and care that conforms to NICE technology appraisal guidance. The Assembly Minister for Health and Social Services issued a Direction in October 2003 that requires local health boards and NHS trusts to make funding available to enable the implementation of NICE technology appraisal guidance, normally within 3 months.

5.3 NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website (www.nice.org.uk/TA145).

- Costing report and costing template to estimate the savings and costs associated with implementation.
- Audit support for monitoring local practice.

6 Recommendations for further research

- 6.1 A clinical trial on radiation therapy and cisplatin with or without cetuximab in patients with stage III or stage IV head and neck cancer (RTOG-0522) is currently recruiting patients.
- 6.2 The Committee recommends further research on the following:
- Cetuximab in combination with radiotherapy compared with radiotherapy alone in patients with low Karnofsky performance-status scores.
 - Cetuximab in combination with radiotherapy compared with chemoradiotherapy in patients with high Karnofsky performance-status scores.

7 Related NICE guidance

Published

- Improving outcomes in head and neck cancers: the manual. NICE cancer service guidance (2004). Available from www.nice.org.uk/csghn

8 Review of guidance

- 8.1 The review date for a technology appraisal refers to the month and year in which the Guidance Executive will consider whether the technology should be reviewed. This decision will be taken in the light of information gathered by the Institute, and in consultation with consultees and commentators.
- 8.2 The guidance on this technology will be considered for review in March 2011.

Andrew Dillon
Chief Executive
June 2008

Appendix A: Appraisal Committee members and NICE project team

A *Appraisal Committee members*

The Appraisal Committee is a standing advisory committee of the Institute. Its members are appointed for a 3-year term. A list of the Committee members who took part in the discussions for this appraisal appears below. The Appraisal Committee meets three times a month except in December, when there are no meetings. The Committee membership is split into three branches, each with a chair and vice chair. Each branch considers its own list of technologies, and ongoing topics are not moved between the branches.

Committee members are asked to declare any interests in the technology to be appraised. If it is considered there is a conflict of interest, the member is excluded from participating further in that appraisal.

The minutes of each Appraisal Committee meeting, which include the names of the members who attended and their declarations of interests, are posted on the NICE website.

Professor David Barnett

Professor of Clinical Pharmacology, University of Leicester

Dr David W Black

Director of Public Health, Derbyshire County PCT

Mr Brian Buckley

Chairman, Incontact

Dr Carol Campbell

Senior Lecturer, University of Teesside

Professor Mike Campbell

Professor of Medical Statistics, University of Sheffield

Professor David Chadwick

Professor of Neurology, Liverpool University

Dr Peter Clarke

Consultant Medical Oncologist, Clatterbridge Centre for Oncology,
Merseyside

Ms Jude Cohen

Manager of Resources & Administration, United Kingdom Council for
Psychotherapy (UKCP)

Dr Christine Davey

Senior Researcher, North Yorkshire Alliance Research and Development Unit

Dr Mike Davies

Consultant Physician, Manchester Royal Infirmary

Mr Richard Devereaux-Phillips

Public Affairs Manager, Medtronic

Dr Rachel A Elliott

Lord Trent Professor of Medicines and Health, University of Nottingham

Mrs Eleanor Grey

Lay member

Dr Dyfrig Hughes

Senior Research Fellow in Pharmacoeconomics, Centre for the Economics of
Health and Policy in Health, University of Wales

Dr Catherine Jackson

Clinical Lecturer in Primary Care Medicine, Alyth Health Centre

Dr Peter Jackson

Clinical Pharmacologist, University of Sheffield

Professor Peter Jones

Pro Vice Chancellor for Research & Enterprise, Professor of Statistics, Keele University

Ms Rachel Lewis

Practice Development Facilitator, Manchester PCT

Damien Longson

Consultant in Liaison Psychiatry, North Manchester General Hospital

Professor Jonathan Michaels

Professor of Vascular Surgery, University of Sheffield

Dr Eugene Milne

Deputy Medical Director, North East Strategic Health Authority

Dr Simon Mitchell

Consultant Neonatal Paediatrician, St Mary's Hospital, Manchester

Dr Richard Alexander Nakielny

Consultant Radiologist, Royal Hallamshire Hospital, Sheffield

Dr Katherine Payne

Health Economics Research Fellow, University of Manchester

Dr Martin J Price

Head of Outcomes Research, Janssen-Cilag

Dr Philip Rutledge

GP and Consultant in Medicines Management, NHS Lothian

Mr Miles Scott

Chief Executive, Bradford Teaching Hospitals NHS Foundation Trust

Professor Mark Sculpher

Professor of Health Economics, University of York

Professor Andrew Stevens

Chair of Appraisal Committee C

Dr Cathryn Thomas

GP and Associate Professor, University of Birmingham

Mr William Turner

Consultant Urologist, Addenbrookes Hospital, Cambridge

B NICE project team

Each technology appraisal is assigned to a team consisting of one or more health technology analysts (who act as technical leads for the appraisal), a technical adviser and a project manager.

Nicola Hay

Technical Lead

Janet Robertson

Technical Adviser

Chris Feinmann

Project Manager

Appendix B: Sources of evidence considered by the Committee

- A The Evidence Review Group (ERG) report for this appraisal was prepared by the Centre for Health Economics, University of York and NHS Northern and Yorkshire Regional Drug and Therapeutics Centre, Newcastle.
- Griffin S et al. Cetuximab for the treatment of locally advanced squamous cell carcinoma of the head and neck, September 2006.
- B The following organisations accepted the invitation to participate in this appraisal. They were invited to comment on the draft scope, the ERG report and the appraisal consultation document (ACD). Organisations listed in I were also invited to make written submissions. Organisations listed in II gave their expert views on cetuximab by providing a written statement to the Committee. Organisations listed in I, II and III were requested to submit further evidence as a result of the appeal decision. Organisations listed in I and II have the opportunity to appeal against the final appraisal determination.
- I Manufacturer/sponsor:
- Merck Pharmaceuticals UK
- II Professional/specialist and patient/carer groups:
- British Association of Head and Neck Oncologists
 - British Association of Head and Neck Oncology Nurses
 - British Association of Oral and Maxillofacial Surgeons
 - Cancer Networks Pharmacists Forum (BOPA)
 - Cancer Research UK
 - Cancerbackup
 - Department of Health
 - Get A-Head
 - Let's Face it
 - Mouth Cancer Foundation
 - National Association of Laryngectomy Clubs
 - Royal College of General Practitioners
 - Royal College of Nursing

- Royal College of Paediatrics and Child Health
- Royal College of Pathologists
- Royal College of Physicians' Medical Oncology Joint Special Committee
- Royal College of Radiologists
- Royal Pharmaceutical Society
- Sheffield South West PCT
- Welsh Assembly Government

III Commentator organisations (without the right of appeal):

- British National Formulary
- Centre for Health Economics, University of York and the Regional Drug and Therapeutics Centre, Newcastle
- Department of Health, Social Services and Public Safety for Northern Ireland
- King's College Hospital Maxillofacial Unit – The Head and Neck Oncology Group
- Medical Research Council (MRC) Clinical Trials Unit
- National Collaborating Centre for Cancer
- National Coordinating Centre for Health Technology Assessment
- NHS Quality Improvement

C The following individuals were selected from clinical specialist and patient advocate nominations from the non-manufacturer/sponsor consultees and commentators. They gave their expert personal view on cetuximab by attending the initial Committee discussion and providing written evidence to the Committee. They were also invited to comment on the ACD.

- Dr Nick Slevin, Consultant Clinical Oncologist, Christie Hospital NHS Trust, nominated by the Royal College of Radiologists – clinical specialist
- Dr Kevin Harrington, Mayo Clinic College of Medicine, nominated by the Royal College of Radiologists – clinical specialist (written statement only)
- Ms Brenda Brady, nominated by the Mouth Cancer Foundation – patient expert
- Mrs Jean Fraser, nominated by the National Association of Laryngectomee Clubs – patient expert