

# NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

## Single Technology Appraisal

### Afatinib for treating locally advanced or metastatic squamous non-small-cell lung cancer after platinum-based chemotherapy [ID969]

#### Final scope

#### Remit/appraisal objective

To appraise the clinical and cost effectiveness of afatinib within its marketing authorisation for treating locally advanced or metastatic squamous non-small-cell lung cancer after platinum-based chemotherapy.

#### Background

Lung cancer falls into two main histological categories: around 85–90% are non-small-cell lung cancers (NSCLC)<sup>i</sup> and the remainder are small-cell lung cancers. NSCLC can be further classified into 3 histological sub-types of large-cell undifferentiated carcinoma, squamous cell carcinoma and adenocarcinoma; about 30% of lung cancers are squamous cell carcinomas<sup>ii</sup>. Most lung cancers are diagnosed at an advanced stage<sup>iii</sup>, when the cancer has spread to lymph nodes and other organs in the chest (locally advanced disease; stage III) or to other parts of the body (metastatic disease; stage IV).

In 2013, approximately 26,800 people were diagnosed with NSCLC in England, of whom 13% had stage IIIA, 10% had stage IIIB and 46% had stage IV disease<sup>iii</sup>. The prognosis for people with non-small-cell lung cancer is generally poor. 35% of people with stage III NSCLC and 14% of people with stage IV disease survive for more than 1 year<sup>iv</sup>.

The aims of therapy are to prolong survival and improve quality of life. Treatment choices may be influenced by the presence of biological markers (such as checkpoint inhibitor programmed death-ligand 1 [PD-L1] or mutations in epidermal growth factor receptor-tyrosine kinase [EGFR-TK] or anaplastic-lymphoma-kinase [ALK]), histology (squamous or non-squamous) and previous treatment experience. For people with locally advanced or metastatic squamous NSCLC, treatment is often with platinum doublet therapy (that is, cisplatin or carboplatin and either docetaxel, paclitaxel, vinorelbine, or gemcitabine). For people whose disease has progressed after previous treatment with chemotherapy, NICE clinical guideline (CG) 121 recommends docetaxel monotherapy. NICE technology appraisal TA310 concluded that afatinib could be used for treating EGFR-TK positive tumours if the person has not previously had an EGFR tyrosine kinase inhibitor, and TA374 recommends erlotinib in specific circumstances (that is, only if the person received chemotherapy first-line because of delayed diagnosis of EGFR-TK mutation-positive status or tumours of unknown EGFR-TK mutation status). In clinical practice, ALK-positive NSCLC tumours that progress after treatment with platinum doublet therapy may be treated with a targeted

therapy such as crizotinib (subject to ongoing Cancer Drugs Fund reconsideration appraisal). Best supportive care may be considered for some people for whom chemotherapy is unsuitable or may not be tolerated.

### The technology

Afatinib (Giotrif, Boehringer Ingelheim) is an inhibitor of epidermal growth factor receptor tyrosine kinase (EGFR-TK). It blocks the signal pathways involved in cell proliferation and helps to slow the growth and spread of tumours. Afatinib is administered orally.

Afatinib has a marketing authorisation in the UK for treating locally advanced or metastatic NSCLC of squamous histology progressing on or after platinum-based chemotherapy.

Afatinib also has a marketing authorisation for treating EGFR TKI-naïve adults with locally advanced or metastatic NSCLC with activating EGFR mutation(s).

<b>Intervention(s)</b>	Afatinib
<b>Population(s)</b>	Adults with advanced or metastatic squamous NSCLC progressing on or after treatment with platinum based chemotherapy
<b>Comparators</b>	<ul style="list-style-type: none"> <li>• Docetaxel monotherapy</li> <li>• Nivolumab (subject to ongoing NICE appraisal)</li> <li>• Erlotinib (only in the specific circumstances described in TA374)</li> <li>• Crizotinib (only for ALK-positive NSCLC, subject to ongoing CDF reconsideration appraisal)</li> <li>• Pembrolizumab (only for PD-L1 positive tumours; subject to ongoing NICE appraisal)</li> <li>• Best supportive care</li> </ul>
<b>Outcomes</b>	<p>The outcome measures to be considered include:</p> <ul style="list-style-type: none"> <li>• overall survival</li> <li>• progression-free survival</li> <li>• response rates</li> <li>• adverse effects of treatment</li> <li>• health-related quality of life.</li> </ul>

<p><b>Economic analysis</b></p>	<p>The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year.</p> <p>The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared.</p> <p>Costs will be considered from an NHS and Personal Social Services perspective.</p> <p>The availability of any patient access schemes for the intervention or comparator technologies will be taken into account.</p>
<p><b>Other considerations</b></p>	<p>Guidance will only be issued in accordance with the marketing authorisation.</p>
<p><b>Related NICE recommendations and NICE Pathways</b></p>	<p>Related Technology Appraisals:</p> <p>‘Ramucirumab for previously treated locally advanced or metastatic non-small-cell lung cancer’ (2016). NICE technology appraisal 403. Review date August 2019</p> <p>‘Erlotinib and gefitinib for treating non-small-cell lung cancer that has progressed following prior chemotherapy (Review of TA162 and TA175)’ (2015). NICE technology appraisal 374. Review date December 2018.</p> <p>‘Afatinib for treating epidermal growth factor receptor mutation-positive locally advanced or metastatic non-small cell lung cancer’ (2014). NICE technology appraisal TA310. Review date April 2017.</p> <p>Appraisals in development (including suspended appraisals):</p> <p>‘Nivolumab for treating metastatic, squamous, non-small-cell lung cancer after chemotherapy’. NICE technology appraisal guidance [ID811]. Publication date to be confirmed.</p> <p>‘Pembrolizumab for treating PD-L1-positive non-small-cell lung cancer after platinum-based chemotherapy’. NICE technology appraisal guidance [ID840]. Publication expected January 2017.</p> <p>‘Crizotinib for previously treated anaplastic lymphoma kinase-positive advanced non-small-cell lung cancer’. NICE technology appraisal Cancer Drugs Fund reconsideration of TA296 [ID1010]. Publication expected</p>

	<p>February 2017.</p> <p>Related Interventional Procedures:</p> <p>'Microwave ablation for treating primary lung cancer and metastases in the lung' (2013). NICE interventional procedures guidance 469.</p> <p>Related Diagnostic Guidance</p> <p>'EGFR-TK mutation testing in adults with locally advanced or metastatic non-small-cell lung cancer' (2013). NICE diagnostics guidance 9.</p> <p>Related Guidelines:</p> <p>'Lung cancer: The diagnosis and treatment of lung cancer' (2011). NICE clinical guideline 121. Review in progress.</p> <p>Related Quality Standards:</p> <p>'Lung cancer for adults' (2012). NICE quality standard 17.</p> <p>Related NICE Pathways:</p> <p><a href="#">Lung Cancer</a> (2012) NICE pathway</p>
<p><b>Related National Policy</b></p>	<p>Department of Health (2016) '<a href="#">NHS Outcomes Framework 2015-16</a>'. Domains 1 to 5.</p> <p>NHS England (2016) '<a href="#">Manual for Prescribed Specialised Services</a>'. Chapter 105.</p> <p>Department of Health, (2011) '<a href="#">Improving outcomes: a strategy for cancer</a>'</p> <p>Department of Health (2009) '<a href="#">Cancer commissioning guidance</a>'</p> <p>Department of Health (2007) '<a href="#">Cancer reform strategy</a>'</p>

## References

- <sup>i</sup> Cancer Research UK (2013) '[Lung cancer incidence statistics](#)' [Accessed September 2016]
- <sup>ii</sup> GM Journal (2014) '[News article: New trial results for advanced squamous cell carcinoma of the lung](#)' [Accessed September 2016]
- <sup>iii</sup> Health and Social Care Information Centre (2014) '[National Lung Cancer Audit: 2013 Patient Cohort](#)' [Accessed September 2016]
- <sup>iv</sup> Cancer Research UK (2013) '[Lung cancer survival statistics](#)' [Accessed September 2016]