NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Single Technology Appraisal

Atezolizumab for treating locally advanced or metastatic non-small-cell lung cancer after chemotherapy

Final scope

Remit/appraisal objective

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

Background

Lung cancer falls into two main histological categories: around 85–90% are non-small-cell lung cancers (NSCLC) 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. Most lung cancers are diagnosed at an advanced stage, 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 2014, approximately 26,500 people were diagnosed with NSCLC in England and Wales, of whom 13% had stage IIIA, 10% had stage IIIB and 46% had stage IV disease.[1]

Cancer cells expressing an immunologic marker called programmed cell death 1 ligand (PD-L1) are believed to suppress certain immune responses and cause increased tumor aggressiveness. The proportion of NSCLC that is PD-L1 positive in England is unknown.

Lung cancer caused approximately 30,900 deaths in England in 2014.[2] The median survival of people with lung cancer (all stages) is approximately 6 months; 35% of people with lung cancer survive for more than 1 year after diagnosis.

The aims of treatment are to prolong survival and improve quality of life. Treatment choices may be influenced by the presence of biological markers (such as mutations in epidermal growth factor receptor-tyrosine kinase (EGFR-TK), anaplastic-lymphoma-kinase (ALK), histology (squamous or non-squamous) and previous treatment experience. For people with locally advanced or metastatic NSCLC whose disease has progressed after chemotherapy, NICE recommends docetaxel monotherapy, nintedanib plus docetaxel (for adenocarcinoma), afatinib (for EGFR-TK mutation positive tumours) and erlotinib (delayed or unknown EGFR-TK mutation status) as options in some circumstances (CG121, technology appraisal 347, 310 and 374 respectively). The final appraisal determination for the Cancer Drugs Fund reconsideration of TA296 states that crizotinib is recommended, within

its marketing authorisation, as an option for previously treated anaplastic lymphoma kinase-positive advanced non-small-cell lung cancer in adults (). Best supportive care may be considered for some people for whom chemotherapy is unsuitable or may not be tolerated.

The technology

Atezolizumab (Tecentriq, Roche) is a humanised, anti-programmed cell death ligand-1 (PD-L1) monoclonal antibody involved in the blockade of immune suppression and the subsequent reactivation of anergic T-cells. It is administered intravenously.

Atezolizumab does not currently have a marketing authorisation in the UK for treating non-small-cell lung cancer. It has been studied in a randomised, controlled trial compared with docetaxel in patients with locally advanced or metastatic NSCLC after prior platinum treatment.

Intervention(s)	Atezolizumab
Population(s)	People with locally advanced or metastatic non-small-cell lung cancer whose disease has progressed after chemotherapy.
Comparators	• Docetaxel monotherapy • Nintedanib with docetaxel (for people with adenocarcinoma histology) • Nivolumab (subject to ongoing NICE appraisal) • Pembrolizumab (PD-L1-expressing tumours; subject to ongoing NICE appraisal) • Best supportive care
Outcomes	The outcome measures to be considered include: • overall survival • progression-free survival • response rates • adverse effects of treatment • health-related quality of life.

Economic analysis	The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year. If appropriate, the appraisal should include consideration of the costs and implications of additional testing for biological markers, but will not make recommendations on specific diagnostic tests or devices. 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. Costs will be considered from an NHS and Personal Social Services perspective. The availability of any patient access schemes for the intervention or comparator technologies will be taken into account.
Other considerations	Guidance will only be issued in accordance with the marketing authorisation. If the evidence allows, consideration will be given to subgroups based on biological markers. Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.
Related NICE recommendations and NICE Pathways	**Related Technology Appraisals:** 'Ramucirumab for previously treated locally advanced or metastatic non-small-cell lung cancer'. NICE Technology Appraisal 403. Review proposal date Aug 2019. 'Erlotinib and gefitinib for treating non-small-cell lung cancer that has progressed after prior chemotherapy' (Dec 2015). NICE Technology Appraisal 374. Review Proposal Date Dec 2018. 'Nintedanib for previously treated locally advanced, metastatic, or locally recurrent non‑small‑cell lung cancer' (Jul 2015). NICE Technology Appraisal 347. Review Proposal Date Jul 2018. 'Afatinib for treating epidermal growth factor receptor mutation-positive locally advanced or metastatic non-small-cell lung cancer' (Mar 2014). NICE Technology Appraisal 310. Review Proposal Date Apr 2017.

	'Crizotinib for previously treated non-small-cell lung cancer associated with an anaplastic lymphoma kinase fusion gene' (Sept 2013). NICE Technology Appraisal 296, Undergoing CDF rapid reconsideration process. 'Pemetrexed for the treatment of non-small-cell lung cancer' (Nov 2007). NICE Technology Appraisal 124, Static list. **Appraisals in development (including suspended appraisals)** 'Nivolumab for previously treated locally advanced or metastatic squamous non-small-cell lung cancer'. NICE Technology Appraisals guidance [ID900]. Publication expected TBC 'Pembrolizumab for treating advanced or recurrent PD-L1 positive non-small-cell lung cancer after platinum-based chemotherapy'. NICE Technology Appraisals guidance [ID840]. Publication expected January 2017. 'Crizotinib for previously treated non-small-cell lung cancer associated with an anaplastic lymphoma kinase fusion gene'. NICE Technology Appraisals guidance. [ID1010] (CDF rapid reconsideration process). Publication expected December 2016. **Related Guidelines:** 'The diagnosis and treatment of lung cancer' (Apr 2011). NICE clinical guideline 121. Review date March 2016 **Related Quality Standards:** 'Quality standard for lung cancer' (Mar 2012). NICE Quality Standard 17. Related NICE Pathways: NICE Pathway: Lung cancer. Pathway created: Mar 2012. http://pathways.nice.org.uk/pathways/lung-cancer
Related National Policy	Department of Health, 'Improving Outcomes: A Strategy for Cancer, third annual report' (Dec 2013) https://www.gov.uk/government/publications/the-national-cancer-strategy-3rd-annual-report--2 NHS England, 'Manual for prescribed specialised services, service' 105: specialist cancer services (adults) (Jan 2014) http://www.england.nhs.uk/wp-content/uploads/2014/01/pss-manual.pdf Department of Health, NHS Outcomes Framework

	2015-2016, Dec 2014. Domains 1 and 4. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/385749/NHS_Outcomes_Framework.pdf

References.

1. Health and Social Care Information Centre (2015) National Lung Cancer Audit annual report. Accessed February 2016.
2. Office for National Statistics (2015) Mortality Statistics: Deaths Registered in England and Wales (Series DR) 2014. Accessed February 2016.