

# NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

## Health Technology Evaluation

### **Pembrolizumab before surgery (neoadjuvant) then with radiotherapy after surgery (adjuvant) for newly diagnosed, resectable, locally advanced, squamous cell head and neck cancer [ID6477]**

#### **Final scope**

#### **Remit/evaluation objective**

To appraise the clinical and cost effectiveness of pembrolizumab before surgery (neoadjuvant) then with radiotherapy (with or without cisplatin) after surgery (adjuvant) for untreated, resectable, locally advanced, squamous cell head and neck cancer.

#### **Background**

Head and neck cancer is a heterogeneous group of malignant tumours that arise in the head and neck at the following sites: skin and lip, oral cavity, oropharynx, larynx, hypopharynx, nasopharynx, salivary glands, nasal cavity and paranasal sinuses, and external auditory meatus and middle ear. The most common histological type of head and neck cancer is squamous cell carcinoma (approximately 90%)<sup>1</sup>, particularly that affecting the oral cavity, oropharynx and larynx. Although the local metastases of head and neck cancer occur frequently (usually spreading through the lymphatic system in the neck), distant metastases are less common.

In 2022, there were approximately 11,417 cases of head and neck cancer diagnosed in England.<sup>2</sup> The development of head and neck cancer is associated with tobacco, alcohol and other environmental and dietary factors. Survival depends on several factors, mainly the origin of the cancer and the stage of the disease at diagnosis. In 2020, there were 2,669 deaths from head and neck cancer in England.<sup>3</sup>

Treatment options for untreated squamous head and neck cancer vary according to the specific sites involved and the stage of diagnosis as recommended by [NICE guidance NG36](#). These treatments can include surgical resection, post operative radiotherapy with or without chemotherapy, or neoadjuvant treatment prior to surgery followed by radiotherapy with or without chemotherapy. [NICE technology appraisal guidance 145](#) recommends cetuximab in combination with radiotherapy for locally advanced squamous cell carcinoma where platinum-based chemotherapy is contraindicated. For people with recurrent or metastatic disease [NICE technology appraisal 473](#) recommends cetuximab in combination with platinum-based chemotherapy only if the cancer has started in the oral cavity. [NICE technology appraisal 661](#) recommends pembrolizumab for metastatic or unresectable squamous cell head and neck cancer. [NICE technology appraisal 736](#) recommends nivolumab as a treatment option for adults whose disease has progressed on platinum-based chemotherapy.

#### **The technology**

Pembrolizumab (Keytruda, Merck Sharp & Dohme) does not currently have a marketing authorisation in the UK for untreated, locally advanced, squamous cell head and neck cancer. Pembrolizumab before surgery (neoadjuvant) then with

Final scope for the evaluation of pembrolizumab before surgery (neoadjuvant) then with radiotherapy after surgery (adjuvant) for newly diagnosed, resectable, locally advanced, squamous cell head and neck cancer [ID6477]

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radiotherapy (with or without cisplatin) after surgery (adjuvant) is being studied in a randomised controlled trial in adults with untreated, newly diagnosed, resectable, locally advanced, squamous cell head and neck cancer.

<b>Intervention(s)</b>	Pembrolizumab before surgery (neoadjuvant) then with radiotherapy (with or without cisplatin) after surgery (adjuvant)
<b>Population(s)</b>	Adults with untreated, newly diagnosed, resectable, locally advanced squamous cell head and neck cancer
<b>Subgroups</b>	If the evidence allows subgroups will be considered based on: <ul style="list-style-type: none"> <li>• PD-L1 combined positive score</li> </ul>
<b>Comparators</b>	For neoadjuvant (before surgery) or adjuvant (after surgery) head and neck cancer: <ul style="list-style-type: none"> <li>• Established clinical management without pembrolizumab including but not limited to: <ul style="list-style-type: none"> <li>◦ Radiotherapy with or without chemotherapy</li> </ul> </li> </ul> For locally advanced head and neck cancer: <ul style="list-style-type: none"> <li>• Cetuximab in combination with radiotherapy</li> </ul>
<b>Outcomes</b>	The outcome measures to be considered include: <ul style="list-style-type: none"> <li>• overall survival</li> <li>• event-free survival</li> <li>• progression-free survival</li> <li>• disease-free survival</li> <li>• major pathological response</li> <li>• pathological complete response</li> <li>• response times</li> <li>• adverse effects of treatment</li> <li>• health-related quality of life.</li> </ul>

<b>Economic analysis</b>	<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 commercial schemes for the intervention or comparator technologies will be taken into account.</p> <p>The availability and cost of biosimilar and generic products should be taken into account.</p>
<b>Other considerations</b>	<p>Guidance will only be issued in accordance with the marketing authorisation. 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.</p>
<b>Related NICE recommendations</b>	<p><b>Related technology appraisals:</b></p> <p><a href="#">Cetuximab for the treatment of locally advanced squamous cell cancer of the head and neck</a> (2008) NICE technology appraisal guidance 145</p> <p><a href="#">Cetuximab for treating recurrent or metastatic squamous cell cancer of the head and neck</a> (2017) NICE technology appraisal guidance 473</p> <p><a href="#">Pembrolizumab for untreated metastatic or unresectable recurrent head and neck squamous cell carcinoma</a> (2020) NICE technology appraisal guidance 661</p> <p><a href="#">Nivolumab for treating recurrent or metastatic squamous cell carcinoma of the head and neck after platinum-based chemotherapy</a> (2021) NICE technology appraisal guidance 736</p> <p><b>Related NICE guidelines:</b></p> <p><a href="#">Cancer of the upper aerodigestive tract: assessment and management in people aged over 16 and over</a> (2018) guideline NG36</p> <p><b>Related quality standards:</b></p> <p><a href="#">Head and neck cancer</a> (2017) NICE quality standard 146</p>
<b>Related National Policy</b>	<p>The NHS Long Term Plan (2019) <a href="#">NHS Long Term Plan</a></p>

	NHS England (2023) <a href="#">Manual for prescribed specialist services (2023/2024)</a>
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## References

1. [Vigneswaran N, Williams MD. Epidemiological trends in head and neck cancer and aids in diagnosis.](#) (2014) Oral Maxillofacial Surgery Clin North
2. Cancer Registration Statistics (2022) [Cancer registration statistics](#), England 2020. Accessed February 2025
3. NHS England (2022). [Cancer mortality statistics, England 2020](#). Accessed February 2025