

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Evaluation

Trastuzumab deruxtecan for treating HER2-positive unresectable or metastatic breast cancer after trastuzumab and a taxane [ID3909]

Final scope

Remit/evaluation objective

To appraise the clinical and cost effectiveness of trastuzumab deruxtecan within its marketing authorisation for HER2-positive unresectable or metastatic breast cancer after trastuzumab and a taxane.

Background

Breast cancer arises from the tissues of the ducts or lobules of the breast. Metastatic breast cancer is when the cancer has spread beyond the breast and nearby lymph nodes to other organs in the body. Unresectable means that the cancer cannot be removed by surgery. Human epidermal growth factor receptor 2 (HER2) is a receptor for a growth factor which occurs naturally in the body. When human epidermal growth factor attaches itself to HER2 receptors on breast cancer cells, it can stimulate the cells to divide and grow. Some breast cancer cells have more HER2 receptors or extra copies of the HER2 gene than others. In this case, the tumour is described as being HER2-positive.

In 2017, there were 46,109 new diagnoses of breast cancer in England.¹ There were approximately 3,900 cases of breast cancer in stage IV in the UK in 2018 according to the National Cancer Registration and Analysis Service.² In 2017 in England, there were 10,219 deaths from breast cancer.³ It is estimated that approximately 15-20% of women with breast cancer will have HER2-positive tumours.⁴

Current treatments for advanced breast cancer aim to relieve symptoms, prolong survival and maintain a good quality of life while managing adverse events. Treatment depends on whether the cancer cells have particular receptors (hormone receptor status or HER2 status), the extent of the disease and previous treatments.

For people with HER2-positive unresectable or metastatic breast cancer who have not had previous anti-HER2 treatment or chemotherapy for their metastatic disease, NICE technology appraisal guidance [509](#) recommends pertuzumab with trastuzumab and docetaxel as first line treatment. NICE technology appraisal guidance [34](#) recommends trastuzumab with paclitaxel as an option for people with tumours expressing HER2 who have not received chemotherapy for metastatic breast cancer and in whom anthracycline is not appropriate. For disease that has progressed after trastuzumab and a taxane, NICE technology appraisal guidance [458](#) recommends trastuzumab emtansine as an option for treating HER2-positive unresectable, locally advanced or metastatic breast cancer.

The technology

Trastuzumab deruxtecan (Enhertu, Daiichi-Sankyo) is an antibody-drug conjugate which consists of a HER2 antibody with the same amino acid sequence as

trastuzumab linked to a chemotherapy agent. It binds to a specific target HER2 expressed on cancer cells and delivers a cytotoxic agent to the cancer cells to kill them. It is administered intravenously.

Trastuzumab deruxtecan does not currently have a marketing authorisation in the UK for treating HER2-positive unresectable or metastatic breast cancer after trastuzumab and a taxane. It has been compared with trastuzumab emtansine in a clinical trial in people with HER2-positive, unresectable or metastatic breast cancer previously treated with trastuzumab and taxane.

Trastuzumab deruxtecan as monotherapy is indicated for the treatment of adult patients with unresectable or metastatic HER2-positive breast cancer who have received two or more prior anti-HER2-based therapies.

Intervention(s)	Trastuzumab deruxtecan
Population(s)	People with HER2-positive unresectable or metastatic breast cancer who have received trastuzumab and a taxane
Comparators	Trastuzumab emtansine
Outcomes	<p>The outcome measures to be considered include:</p> <ul style="list-style-type: none"> • progression free survival • overall survival • response rate • duration of response • adverse effects of treatment • health-related quality of life.
Economic analysis	<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>If the technology is likely to provide similar or greater health benefits at similar or lower cost than technologies recommended in published NICE technology appraisal guidance for the same indication, a cost-comparison may be carried out.</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 arrangements for the intervention, comparator and subsequent treatment technologies will be taken into account.</p>

Other considerations	<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> <p>The availability and cost of biosimilar and generic products should be taken into account.</p>
Related NICE recommendations	<p>Related Technology Appraisals:</p> <p>Pertuzumab with trastuzumab and docetaxel for treating HER2-positive breast cancer (2018) NICE technology appraisal guidance 509.</p> <p>Trastuzumab emtansine for treating HER2-positive advanced breast cancer after trastuzumab and a taxane (2017) NICE technology appraisal guidance 458.</p> <p>Guidance on the use of trastuzumab for the treatment of advanced breast cancer (2002) NICE technology appraisal guidance 34</p> <p>Terminated appraisals:</p> <p>None.</p> <p>Appraisals in development (including suspended appraisals)</p> <p>None.</p> <p>Related Guidelines:</p> <p>‘Advanced breast cancer: diagnosis and treatment (2009) NICE guideline CG81 last updated August 2017</p> <p>Related Quality Standards:</p> <p>Breast cancer (2011, updated 2016) NICE quality standard QS12</p>
Related National Policy	<p>The NHS Long Term Plan (2019) NHS Long Term Plan</p> <p>NHS England (2018/2019) NHS manual for prescribed specialist services (2018/2019) Specialist cancer services (adults) Chapter 105</p> <p>NHS England (2018) NHS England Funding and Resource 2018/19: Supporting ‘Next Steps for the NHS Five Year Forward View’</p> <p>Department of Health and Social Care, NHS Outcomes Framework 2016-2017: Domains 1 and 2.</p> <p>Department of Health, Improving Outcomes: A Strategy for Cancer, fourth annual report, Dec 2014</p>

References

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2. National Cancer Registration and Analysis Service (NCRAS). Stage breakdown by CCG 2016. London: Public Health England, 2018. Available from: <http://www.ncin.org.uk/view?rid=3604> Accessed October 2021
3. Office for National Statistics. Death Registrations Summary Statistics, England and Wales, 2017. Available from: <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathregistrationssummarytablesenglandandwalesreferencetables> Accessed October 2021
4. Macmillan Cancer Support Receptors for HER2. Available from <https://www.macmillan.org.uk/cancer-information-and-support/breast-cancer/receptors-for-breast-cancer> Accessed October 2021