

**NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE**

**Health Technology Appraisal**

**Abemaciclib in combination with fulvestrant for treating advanced hormone receptor-positive, HER2-negative breast cancer (CDF review of TA579)**

**Final scope**

**Remit/appraisal objective**

To appraise the clinical and cost effectiveness of abemaciclib within its marketing authorisation for treating hormone receptor-positive, HER2-negative breast cancer.

**Background**

Breast cancer arises from the tissues of the ducts or lobules of the breast. The cancer is said to be 'advanced' if it has spread to other parts of the body such as the bones, liver, and lungs (metastatic cancer), or if it has grown directly into nearby tissues and cannot be completely removed by surgery.

In 2017 in England, around 46,109 people were diagnosed with breast cancer<sup>1</sup>. In 2019 there were 9,525 deaths from breast cancer in England<sup>2</sup>. The 1-year survival rate for adults with metastatic breast cancer in England is 63%<sup>3</sup>. Approximately 13% of women with breast cancer have advanced disease when they are diagnosed<sup>4</sup>, and around 35% of people with early or locally advanced disease will progress to metastatic breast cancer in the 10 years following diagnosis<sup>5</sup>.

Current treatments for advanced breast cancer aim to relieve symptoms, prolong survival and maintain a good quality of life with minimal 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.

NICE clinical guideline 81 (CG81) recommends first-line treatment with endocrine therapy for most people with advanced hormone receptor-positive breast cancer. But for people whose disease is life-threatening or requires early relief of symptoms, CG81 recommends chemotherapy. The endocrine therapies used in clinical practice in postmenopausal people include aromatase inhibitors (anastrozole and letrozole) or tamoxifen, if aromatase inhibitors are not tolerated or are contraindicated. Women who are premenopausal or perimenopausal will receive first-line treatment with tamoxifen and ovarian suppression if they have not previously received tamoxifen, while men will receive tamoxifen as a first-line endocrine treatment. NICE technology appraisals 495, 496 and 563 recommend palbociclib, ribociclib, and abemaciclib (cyclin-dependent kinase 4 and 6 [CDK 4/6]

inhibitors) with an aromatase inhibitor for treating hormone receptor positive, HER2-negative, locally advanced or metastatic breast cancer as initial endocrine based therapy in adults. Fulvestrant is not recommended for untreated locally advanced or metastatic oestrogen-receptor positive breast cancer (NICE technology appraisal 503).

For people who receive first-line treatment with anastrozole or letrozole, second-line treatment may be either tamoxifen, exemestane, or everolimus and exemestane (NICE technology appraisal 421). Subsequent treatment options also include chemotherapy for some people. NICE technology appraisals 579, 593 and 619 recommend abemaciclib, ribociclib and palbociclib with fulvestrant for use within the Cancer Drugs Fund for treating hormone receptor-positive, HER2-negative, advanced breast cancer in people who have had previous endocrine therapy (when exemestane plus everolimus is the most appropriate alternative to a CDK 4/6 inhibitor). Fulvestrant is not recommended for use following anti-oestrogen therapy, as an alternative to aromatase inhibitors (NICE technology appraisal 239), however, it is sometimes used after exemestane and tamoxifen in people who would otherwise receive chemotherapy.

**The technology**

Abemaciclib (Verzenio, Eli Lilly and Company) is an inhibitor of cyclin-dependent kinases 4 and 6, which prevents DNA synthesis by prohibiting progression of the cell cycle from G1 to S phase. It is administered orally.

Abemaciclib in combination with fulvestrant has a marketing authorisation in the UK for treating hormone receptor-positive, HER2-negative locally advanced or metastatic breast cancer.

<b>Intervention(s)</b>	Abemaciclib in combination with fulvestrant
<b>Population(s)</b>	People with advanced hormone-receptor positive HER2-negative breast cancer that has progressed after prior endocrine therapy
<b>Comparators</b>	Everolimus and exemestane
<b>Outcomes</b>	The outcome measures to be considered include: <ul style="list-style-type: none"> <li>• overall survival</li> <li>• progression-free survival</li> <li>• response rate</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. 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 patient access schemes for the comparator technologies will 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 and NICE Pathways</b>	<p>Related technology appraisals:</p> <p><a href="#">Palbociclib with fulvestrant for treating hormone receptor-positive, HER2-negative, advanced breast cancer</a> (2020) NICE technology appraisal 619. Next review date to be confirmed.</p> <p><a href="#">Ribociclib with fulvestrant for treating hormone receptor-positive, HER2-negative, advanced breast cancer</a> (2019) NICE technology appraisal 593. Next review 2021.</p> <p><a href="#">Abemaciclib with fulvestrant for treating hormone receptor-positive, HER2-negative advanced breast cancer after endocrine therapy</a> (2019) NICE technology appraisal 579. Next review 2021.</p> <p><a href="#">Abemaciclib with an aromatase inhibitor for previously untreated, hormone receptor-positive, HER2-negative, locally advanced or metastatic breast cancer (2019)</a> NICE technology appraisal 563. Next review 2022.</p> <p><a href="#">Fulvestrant for untreated locally advanced or metastatic oestrogen-receptor positive breast cancer</a> (2018). NICE technology appraisal 503. Next review date to be</p>

	<p>confirmed.</p> <p><a href="#">Ribociclib in combination with an aromatase inhibitor for previously untreated advanced or metastatic hormone receptor-positive, HER2-negative breast cancer</a> (2017). NICE technology appraisal 496. Next review date December 2020.</p> <p><a href="#">Palbociclib in combination with an aromatase inhibitor for previously untreated metastatic, hormone receptor-positive, HER2-negative breast cancer</a> (2017). NICE technology appraisal 495. Next review date December 2020.</p> <p><a href="#">Everolimus with exemestane for treating advanced breast cancer after endocrine therapy</a> (2016) NICE technology appraisal 421. Next review December 2019.</p> <p><a href="#">Fulvestrant for the treatment of locally advanced or metastatic breast cancer</a> (2011) NICE technology appraisal guidance 239. Review date Nov 2014. Review decision, static list</p> <p><a href="#">Gemcitabine for the treatment of metastatic breast cancer</a> (2007). NICE technology appraisal 116. Review date, May 2010. Review decision, static list.</p> <p>Appraisals in development:</p> <p><a href="#">Ribociclib with fulvestrant for treating hormone receptor-positive, HER2-negative advanced breast cancer</a> (CDF review of TA593) [ID3755] Publication expected in June 2021.</p> <p>Related guidelines:</p> <p><a href="#">Advanced breast cancer: diagnosis and treatment</a> (2009, updated 2017). NICE guideline CG81. Review date 2017.</p> <p><a href="#">Familial breast cancer: Classification and care of people at risk of familial breast cancer and management of breast cancer and related risks in people with a family history of breast cancer</a> (2013, updated 2017). NICE guideline 164. Next review to be scheduled.</p> <p>Related quality standards:</p> <p><a href="#">Breast cancer</a> (2011, updated 2016). NICE quality standard 12.</p> <p>Related NICE Pathways:</p> <p><a href="#">Advanced breast cancer</a> (2017) NICE Pathway</p>
<b>Related National</b>	NHS England (2017) <a href="#">Manual for Prescribed</a>

<b>Policy</b>	<a href="#">Specialised Services</a> . Chapter 105, Specialist Cancer services (adults) Department of Health (2016) <a href="#">NHS Outcomes Framework 2016-2017</a> . Domains 1 and 2.
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### References

- 1 Office for National Statistics (2017) [Cancer registration statistics, England, 2017](#). Accessed August 2020.
- 2 Office for National Statistics (2019) [Mortality statistics – underlying cause, sex and age](#). Accessed August 2020.
- 3 Cancer Research UK (2014) [Breast cancer survival statistics](#). Accessed August 2017.
- 4 Cancer Research UK (2014) [Breast cancer incidence statistics](#). Accessed August 2017.
- 5 Dewis R and Gribbin J (2009) [Breast cancer: diagnosis and treatment, an assessment of need](#). Cardiff: National Collaborating Centre for Cancer. Accessed August 2017.