

# NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

## Health Technology Appraisal

### **Palbociclib in combination with fulvestrant for treating advanced, hormone-receptor positive, HER2-negative breast cancer after endocrine therapy (review of TA619)**

#### **Final scope**

#### **Remit/appraisal objective**

To appraise the clinical and cost effectiveness of palbociclib within its marketing authorisation for treating advanced 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 2018 there were 9,640 deaths from breast cancer in England.<sup>2</sup> The 1-year survival rate for adults diagnosed at stage IV (metastatic breast cancer) in England is 66%.<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> Most (80%) breast cancers are hormone-receptor positive and around two-thirds are oestrogen receptor positive. Human epidermal growth factor receptor 2 (HER2) is present in about 15-25% of breast cancers.<sup>6</sup> Approximately 64% of women with metastatic breast cancer in the UK have hormone-receptor positive, HER2 negative disease.<sup>7</sup>

Current treatments for advanced breast cancer aim to relieve symptoms, prolong survival and maintain a good quality of life with few adverse events. Treatment depends on whether the cancer cells have particular receptors (hormone receptor status or human epidermal growth factor receptor 2 [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

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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](#) and [496](#) recommend palbociclib with an aromatase inhibitor and ribociclib with and 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 [687](#) and [725](#) recommend abemaciclib and ribociclib with fulvestrant 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). NICE technology appraisal [619](#) recommends palbociclib in the same population for use within the Cancer Drugs Fund. This appraisal will update and replace technology appraisal 619. 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**

Palbociclib (Ibrance, Pfizer) is a selective, small-molecule inhibitor of cyclin-dependent kinases 4 and 6, which prevents DNA synthesis by prohibiting progression of the cell cycle from G1 to S phase. Palbociclib is administered orally.

Palbociclib has a marketing authorisation in the UK for the treatment of hormone receptor (HR) positive, human epidermal growth factor receptor 2 (HER2) negative locally advanced or metastatic breast cancer: in combination with an aromatase inhibitor; in combination with fulvestrant in women who have received prior endocrine therapy. In pre- or perimenopausal women, the endocrine therapy should be combined with a luteinizing hormone releasing hormone (LHRH) agonist.

<b>Intervention(s)</b>	Palbociclib in combination with fulvestrant
<b>Population(s)</b>	People with hormone receptor-positive, HER2-negative locally advanced or metastatic breast cancer who have received prior endocrine therapy.
<b>Comparators</b>	<ul style="list-style-type: none"> <li>• CDK4/6 inhibitors in combination with fulvestrant <ul style="list-style-type: none"> <li>○ Abemaciclib</li> <li>○ Ribociclib</li> </ul> </li> <li>• Everolimus and exemestane</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 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.</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</b>	<p>Related technology appraisals: <a href="#">Everolimus with exemestane for treating advanced breast cancer after endocrine therapy</a> (2016) NICE technology appraisal</p>

<b>Pathways</b>	<p>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><a href="#">Alpelisib in combination with fulvestrant for treating advanced hormone-receptor positive, HER2-negative, PIK3CA-positive breast cancer</a> (2020) NICE technology appraisal 652 (terminated appraisal).</p> <p><a href="#">Abemaciclib with fulvestrant for treating advanced hormone-receptor positive, HER2-negative breast cancer after endocrine therapy</a> (2021) NICE technology appraisal 725. Review date 2024.</p> <p><a href="#">Ribociclib in combination with fulvestrant for treating advanced hormone-receptor positive, HER2-negative breast cancer</a> (2021) NICE technology appraisal 687. Review date 2024</p> <p>Appraisals in development:</p> <p><a href="#">Alpelisib in combination with fulvestrant for treating advanced hormone-receptor positive, HER2-negative, PIK3CA-positive breast cancer</a>. ID3929. Earliest publication July 2022.</p> <p>Related guidelines:</p> <p><a href="#">Advanced breast cancer: diagnosis and treatment</a> (2009, updated 2017). NICE guideline CG81. Review date 2017. Surveillance check in January 2018.</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. Surveillance check in November 2019.</p> <p>Related quality standards:</p> <p><a href="#">Breast cancer</a> (2011, updated 2016). NICE quality standard 12.</p>
<b>Related National</b>	The NHS Long Term Plan, 2019. NHS Long Term Plan

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<b>Policy</b>	<p>NHS England (2018) <a href="#">Manual for Prescribed Specialised Services</a> 2018/19. Chapter 105, Specialist Cancer services (adults)</p> <p>Department of Health (2016) <a href="#">NHS Outcomes Framework 2016-2017</a>. Domains 1 and 2.</p>
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## References

1. Office for National Statistics (2019) [Cancer registration statistics, England, 2017](#). Accessed January 2020.
2. Nomis (2020) Office for National Statistics. [Mortality statistics – underlying cause, sex and age](#): 2018 data. Accessed January 2020.
3. Cancer Research UK (2020) [Breast cancer incidence statistics: England 2014 data](#). Accessed January 2020
4. Cancer Research UK (2014) [Breast cancer survival 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.
6. NIHR Evidence Briefing. (2017) [Alpelisib in combination with fulvestrant for advanced HR positive, HER2-negative breast cancer in men and postmenopausal women](#). Accessed September 2018.
7. NICE. (2017) [Resource impact report: Palbociclib with an aromatase inhibitor for previously untreated, hormone receptor positive, HER2-negative, locally advanced or metastatic breast cancer \(TA495\)](#). Accessed September 2018.