NICE National Institute for Health and Care Excellence

Putting NICE guidance into practice

Resource impact report:
Pembrolizumab for neoadjuvant and adjuvant treatment of triple-negative early or locally advanced breast cancer (TA851)

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Summary

NICE has recommended pembrolizumab as an option with chemotherapy for neoadjuvant treatment and alone as adjuvant treatment after surgery for adults with triple-negative:

- early breast cancer at high risk of recurrence or
- locally advanced breast cancer.

It is recommended only if the company provides pembrolizumab according to the commercial arrangement (see section 2 of the guidance).

By 2026/27 we estimate that:

- Around 1,700 people having surgery for early or locally advanced triple negative breast cancer are eligible for treatment with pembrolizumab after adjusting for expected population growth
- Around 1,100 people will receive neoadjuvant pembrolizumab with chemotherapy from year 4 onwards once uptake has reached 65% after adjusting for expected population growth as shown in table 1.
- Around 840 people will receive adjuvant pembrolizumab from year 5 onwards after adjusting for expected population growth as shown in table 1.
- Around 7,500 additional intravenous infusions will be performed in the adjuvant setting by year 5, as shown in table 2.

Table 1 Estimated number of people in England receiving pembrolizumab

	2022/23	2023/24	2024/25	2025/26	2026/27
Uptake rate for pembrolizumab (%)	15%	35%	65%	65%	65%
Population receiving neoadjuvant pembrolizumab with chemotherapy each year	250	580	1,090	1,100	1,100
Population receiving adjuvant pembrolizumab monotherapy each year	190	440	830	830	840

Table 2 Estimated number of additional intravenous infusions for people receiving pembrolizumab in the adjuvant setting

	2022/23	2023/24	2024/25	2025/26	2026/27
Population receiving adjuvant pembrolizumab monotherapy each year	190	440	830	830	840
Number of additional administrations for adjuvant pembrolizumab per year	1,700	4,000	7,400	7,400	7,500
Additional infusion hours per year for adjuvant pemrolizumab	850	2,000	3,700	3,700	3,750

This report is supported by a local resource impact template because the list price of pembrolizumab has a discount that is commercial in confidence. The discounted price of pembrolizumab can be put into the template and other variables may be amended.

This technology is commissioned by NHS England. Providers are NHS hospital trusts.

1 Pembrolizumab

1.1 NICE has recommended pembrolizumab as an option with chemotherapy for neoadjuvant treatment and alone as adjuvant treatment after surgery for adults with triple-negative:

- early breast cancer at high risk of recurrence or
- locally advanced breast cancer.

1.2 It is recommended only if the company provides pembrolizumab according to the commercial arrangement (see section 2 of the guidance).

1.3 Current practice is for neoadjuvant chemotherapy and pembrolizumab will be an addon to the existing therapies. There is no current standard care for adjuvant therapy.

2 Resource impact of the guidance

2.1 By 2026/27 we estimate that:

- Around 1,700 people having surgery for early or locally advanced triple negative breast cancer are eligible for treatment with pembrolizumab each year.
- Around 1,100 people will receive neoadjuvant pembrolizumab with chemotherapy from year 4 onwards once uptake has reached 65% after adjusting for expected population growth.
- Of these around 840 people will receive adjuvant pembrolizumab from year 5 onwards after adjusting for expected population growth
- Around 7,500 additional intravenous infusions will be performed in the adjuvant setting.

2.2 The current treatment and future uptake figure assumptions are based on clinical expert opinion and are shown in the resource

impact template. Table 3 shows the number of people in England who are estimated to receive pembrolizumab by financial year.

Table 3 Estimated number of people receiving pembrolizumab using NICE assumptions

	2022/23	2023/24	2024/25	2025/26	2026/27
Uptake rate for pembrolizumab (%)	15%	35%	65%	65%	65%
Population receiving neoadjuvant pembrolizumab with chemotherapy each year	250	580	1,090	1,100	1,100
Population receiving adjuvant pembrolizumab monotherapy each year	190	440	830	830	840

2.3 Adjuvant pembrolizumab is a completely new treatment option for this population with no comparator therapy. Table 4 shows the number of additional intravenous infusions required to administer this therapy based on the uptake assumptions shown in Table 3.

Table 4 Estimated number of additional intravenous infusions for people receiving pembrolizumab in the adjuvant setting

	2022/23	2023/24	2024/25	2025/26	2026/27
Population receiving adjuvant pembrolizumab monotherapy each year	190	440	830	830	840
Number of additional administrations for adjuvant pembrolizumab per year	1,700	4,000	7,400	7,400	7,500
Additional infusion hours per year for adjuvant pembrolizumab	850	2,000	3,700	3,700	3,750

2.4 This report is supported by a local resource impact template. Pembrolizumab has an agreed patient access scheme which makes it available with a commercial-in-confidence discount to the

list price. The discounted price of pembrolizumab can be put into the template and other variables may be amended.

3 Implications for commissioners

3.1 This technology is commissioned by NHS England. Providers are NHS hospital trusts.

3.2 There will be around 7,500 additional intravenous infusions in the adjuvant setting per year from year 5 onwards, each infusion is 30 minutes so there will be a minimum of 3,750 additional hours of capacity required for the administration of pembrolizumab, excluding any additional time before and after the administration.

3.3 Pembrolizumab falls within the programme budgeting category 02F, cancers and tumours, breast.

4 How we estimated the resource impact

The population

4.1 By 2026/27 there will be around 50,400 cases of breast cancer each year in England, of these around 22,600 (44.9%) will have stage II or III disease on diagnosis. Around 3,400 (15%) of these will have triple negative disease and 1,700 (50%) will have neoadjuvant therapy before surgery.

Table 5 Number of people eligible for treatment in England

Population	Proportion of previous row (%)	Number of people by 2026/27
Adult population		46,263,200
Incidence of breast cancer[1]	0.11	50,400
Proportion of people with stage II or III disease[2]	44.9	22,600
Proportion of people with triple negative disease[3]	15.0	3,400
Proportion of people who have neoadjuvant therapy[4]	50.0	1,700
Total number of people eligible for treatment with pembrolizumab		1,700
Total number of people estimated to receive neoadjuvant pembrolizumab with chemotherapy each year from year 4	65.0	1,100
Total number of people estimated to receive adjuvant pembrolizumab each year from year 4	75.8	840

[1] Source: Cancer Registration Statistics, England 2019 - NHS Digital, C50 malignant neoplasm of breast

[2] Source: Cancer Research UK Early Diagnosis Data Hub

[3] Source: Triple negative breast cancer | Cancer Research UK

[4] Source: Clinical expert opinion

Assumptions

4.2 The resource impact template assumes that:

- Pembrolizumab is given in addition to existing therapies and will not affect their use, all the existing chemotherapy regimens in the neoadjuvant setting are intravenous and so there are no additional administrations in this setting.
- Pembrolizumab is given for 8 cycles in neoadjuvant therapy at three weekly intervals
- Pembrolizumab is given for 9 cycles in adjuvant therapy at three weekly intervals

- Where pembrolizumab is given at six weekly intervals, the number of cycles can be amended locally and the dose can be amended accordingly
- 75.8% of people who have pembrolizumab in neoadjuvant therapy will have it as adjuvant therapy
- Pembrolizumab is administered as an intravenous infusion over 30 minutes
- The administration cost of pembrolizumab is based on HRG SB13Z Deliver More Complex Parenteral Chemotherapy at First Attendance.

About this resource impact report

This resource impact report accompanies the NICE guidance on Pembrolizumab for neoadjuvant and adjuvant treatment of triple-negative early or locally advanced breast cancer (TA851) and should be read with it.

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