NICE National Institute for Health and Care Excellence

Putting NICE guidance into practice

Resource impact report:
Nivolumab with chemotherapy for neoadjuvant treatment of resectable non-small-cell lung cancer (TA876)

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Summary

NICE has recommended nivolumab with chemotherapy as an option for neoadjuvant treatment of resectable (tumours at least 4 cm or node positive) non-small-cell lung cancer (NSCLC) in adults.

We estimate that:

- 4,900 people with resectable tumours are eligible for treatment with nivolumab with chemotherapy after adjusting for population growth.
- 3,900 people will receive nivolumab with chemotherapy from year 2027/28 onwards once uptake has reached 80% as shown in table 1.
- Potential savings in drug costs from reduced use of subsequent treatments after surgery.
- 4,100 fewer chemotherapy appointments from year 2027/28 because fewer people will need subsequent treatments as shown in table 2.

Table 1 Estimated number of people in England receiving nivolumab with chemotherapy

	2023/24	2024/25	2025/26	2026/27	2027/28
Uptake rate for nivolumab with chemotherapy (%)	20	40	50	70	80
Population receiving nivolumab with chemotherapy each year	950	1,900	2,400	3,400	3,900

Table2 Estimated capacity released from reduced chemotherapy appointments for subsequent treatments

	2023/24	2024/25	2025/26	2026/27	2027/28
Reduction in chemotherapy appointments	0	0	2,000	3,400	4,100

Note: It is assumed the reduction in subsequent treatments takes effect in the third year after a person receives neoadjuvant treatment with nivolumab.

This report is supported by a local resource impact template because the list price of nivolumab has a discount that is commercial in confidence. The discounted price of nivolumab 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 Nivolumab

1.1 NICE has recommended nivolumab with chemotherapy within its marketing authorisation, as an option for the neoadjuvant treatment of resectable (tumours at least 4 cm or node positive) non-small-cell lung cancer (NSCLC) in adults.

1.2 Nivolumab with chemotherapy is only recommended if the company provides it according to the commercial arrangement (see section 2 of the guidance).

1.3 Standard care for NSCLC that can be surgically removed (resectable) is surgery. Sometimes chemoradiotherapy before (neoadjuvant) or chemotherapy after (adjuvant) surgery is also used. Commissioning data indicates that current use of neoadjuvant treatment in NSCLC is much lower than that of adjuvant treatment after surgery because not all patients suitable for surgery would be suitable for neoadjuvant treatment.

1.4 Evidence from the CheckMate-816 trial showed that neoadjuvant nivolumab plus chemotherapy is more effective for stage 1B to 3A resectable NSCLC compared with neoadjuvant chemotherapy alone. The committee noted that nivolumab plus chemotherapy increases the potential of good outcomes for the small proportion of people who have potentially curable NSCLC.

1.5 Clinical opinion also suggests fewer patients will need subsequent therapy due to locoregional recurrence or distant metastases in the nivolumab group compared with the standard neoadjuvant chemotherapy arm. There are therefore potential savings in drugs costs and capacity benefits from reduced chemotherapy appointments.

2 Resource impact of the guidance

2.1 We estimate that:

- 4,900 people with resectable tumours are eligible for treatment with nivolumab with chemotherapy after adjusting for population growth.
- 3,900 people will receive nivolumab with chemotherapy from year 2027/28 onwards once uptake has reached 80% as shown in table 3.
- Potential savings in drug costs from reduced use of subsequent treatments after surgery.
- 4,100 fewer chemotherapy appointments from year 2027/28 because fewer people will need subsequent treatments as shown in table 4.

2.2 The current treatment and future uptake figure assumptions are based on expert opinion and are shown in the resource impact template. Table 3 shows the number of people in England who are estimated to receive nivolumab with chemotherapy by financial year.

Table 3 Estimated number of people receiving nivolumab with chemotherapy using NICE assumptions

	2023/24	2024/25	2025/26	2026/27	2027/28
Uptake rate for nivolumab with chemotherapy (%)	20	40	50	70	80
Population receiving nivolumab with chemotherapy each year	950	1,900	2,400	3,400	3,900

Table 4 Estimated capacity released from reduced chemotherapy appointments for subsequent treatments

	2023/24	2024/25	2025/26	2026/27	2027/28
Reduction in chemotherapy appointments	0	0	2,000	3,400	4,100

Note: It is assumed the reduction in subsequent treatments takes effect in the third after a person receives neoadjuvant treatment with nivolumab.

2.3 This report is supported by a local resource impact template. The company has a commercial arrangement (simple discount patient access scheme). This makes nivolumab available to the NHS with a discount. The size of the discount is commercial in confidence. It is the company's responsibility to let relevant NHS organisations know details of the discount.

3 Implications for commissioners

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

3.2 Nivolumab falls within the programme budgeting category 2D – Cancers & Tumours – Lung.

4 How we estimated the resource impact

The population

4.1 Around 40,000 people were diagnosed with lung cancer in 2019 (Cancer Registration Statistics 2019). Table 5 shows the details of the population who have resectable (tumours at least 4 cm or node positive) who are estimated to be eligible for treatment with nivolumab and chemotherapy.

Table 5 Number of people eligible for treatment in England

Population	Proportion of previous row (%)	Number of people
Total population		54,786,327
Adult population after adjusting for population growth		46,263,200
Incidence of lung cancer [1]	0.086	40,000
Percentage of people who have NSCLC[2]	88.6	35,400
Percentage of people with NSCLC who have surgery[2]	18.4	6,500
Percentage of people suitable for neoadjuvant treatment[3]	75	4,900
Total number of people eligible for treatment with nivolumab with chemotherapy		**4,900**
Total number of people estimated to receive nivolumab with chemotherapy each year from year 2027/28[3]	80	**3,900**

[1] Cancer registration statistics England [NHS Digital-2019]

[2] National Lung Cancer Audit report 2018 [version 2 published March 2021]

[3] Clinical expert opinion

Assumptions

4.2 The resource impact template assumes that:

- The cost of chemotherapy treatments taken with nivolumab are approximately the same as neoadjuvant chemotherapy treatments without the addition of nivolumab, therefore the only additional cost assessed in the template is that of nivolumab.
- The use of neoadjuvant chemoradiotherapy in UK clinical practice is low, therefore neoadjuvant chemoradiotherapy is not assessed in the template because any change in use would not have significant resource impact.
- All people suitable for neoadjuvant treatment (75% - see table 5 above) would receive it.

- 10% fewer patients will need subsequent therapy if they received nivolumab compared with people who receive standard neoadjuvant chemotherapy (see para. 1.5 clinical expert opinion).
- 90% of people currently receive a subsequent treatment for disease recurrence (local or distant).
- 80% of people receive a subsequent treatment in future if they received neoadjuvant nivolumab.
- Potential savings and capacity benefits from subsequent treatments are assumed to occur in the third year after people receiving neoadjuvant treatment with nivolumab.
- Subsequent treatments consist mainly of: pembrolizumab monotherapy; pembrolizumab plus pemetrexed and cisplatin; pemetrexed plus cisplatin, pembrolizumab and carboplatin. The option used depends on clinical decision. For simplicity, an average cost has been calculated and used in the template. The template can be amended locally to include other options.
- The administration cost mainly used in subsequent treatments (which includes immunotherapy with pembrolizumab) is; SB12Z Deliver simple parenteral chemotherapy at first Attendance - £164 (National Tariff 2022/23)
- Average number of attendances for subsequent treatments = 11.

About this resource impact report

This resource impact report accompanies the NICE guidance on Nivolumab with chemotherapy for neoadjuvant treatment of resectable non small cell lung cancer [TA876] and should be read with it.