

Putting NICE guidance into practice

Resource impact report: Pembrolizumab for adjuvant treatment of renal cell carcinoma (TA830)

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Summary

NICE has recommended pembrolizumab within its marketing authorisation, as an option for the adjuvant treatment of renal cell carcinoma at increased risk of recurrence after nephrectomy, with or without metastatic lesion resection, in adults. It is recommended only if the company provides it according to the commercial arrangement.

By 2026/27 we estimate that:

- around 2,670 adults with renal cell carcinoma are eligible for pembrolizumab as an adjuvant treatment after adjusting for predicted population growth.
- Around 1,740 adults will start treatment with pembrolizumab.
- Around 13,930 additional hospital administrations for adults with renal cell carcinoma will be needed, as shown in table 2. (This assumes that pembrolizumab is given every 6 weeks with a median treatment duration of 11.1 months).

Table 1 Estimated number of people in England starting treatment with pembrolizumab each year

| | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 |
|--|------------|------------|--------------|--------------|--------------|
| Eligible population | 2,609 | 2,625 | 2,641 | 2,657 | 2,673 |
| Uptake % | 20% | 35% | 50% | 65% | 65% |
| People starting treatment with pembrolizumab | 522 | 919 | 1,320 | 1,727 | 1,738 |
| Total number of people | 522 | 919 | 1,320 | 1,727 | 1,738 |

Table 2 Estimated number of additional outpatient appointments needed in England

| | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 |
|------------------------------------|---------|---------|---------|---------|---------|
| Additional outpatient appointments | 4,184 | 7,365 | 10,585 | 13,847 | 13,929 |

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 within its marketing authorisation, as an option for the adjuvant treatment of renal cell carcinoma at increased risk of recurrence after nephrectomy, with or without metastatic lesion resection, in adults. It is recommended only if the company provides it according to the commercial arrangement.
- 1.2 Current treatment for people who have had renal cell carcinoma that has been treated surgically with either a partial or radical nephrectomy and is at increased risk of recurrence is routine surveillance (regular monitoring) as follow-up.
- 1.3 Pembrolizumab plus routine surveillance is a possible option as an adjuvant treatment.
- 1.4 Clinical trial evidence suggests that, after surgery, pembrolizumab plus routine surveillance increases the time people have before their cancer comes back and how long they live compared with placebo plus routine surveillance.
- 1.5 Clinical experts agreed there is an unmet need for adjuvant treatments for renal cell carcinoma and people with the condition would welcome new treatment options.

2 Resource impact of the guidance

2.1 By 2026/27 we estimate that:

- around 2,670 adults with renal cell carcinoma are eligible for pembrolizumab as an adjuvant treatment after adjusting for predicted population growth.
- around 1,740 adults will start treatment with pembrolizumab each year.
- Around 13,930 additional hospital administrations for adults with renal cell carcinoma will be needed as shown in table 4. (This assumes that pembrolizumab is given every 6 weeks with a median treatment duration of 11.1 months).

2.2 The current treatment and future uptake figure assumptions are based on clinical 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 in England starting treatment with pembrolizumab using NICE assumptions

| | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 |
|--|------------|------------|--------------|--------------|--------------|
| Eligible population | 2,609 | 2,625 | 2,641 | 2,657 | 2,673 |
| Uptake % | 20% | 35% | 50% | 65% | 65% |
| People starting treatment with pembrolizumab | 522 | 919 | 1,320 | 1,727 | 1,738 |
| Total number of people | 522 | 919 | 1,320 | 1,727 | 1,738 |

Table 4 Estimated number of additional outpatient appointments needed in England

| | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 |
|---|---------|---------|---------|---------|---------|
| Additional outpatient appointments | 4,184 | 7,365 | 10,585 | 13,847 | 13,929 |

- 2.3 This report is supported by a local resource impact template because the company have a commercial arrangement (simple discount patient access schemes). This make pembrolizumab 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 and providers

- 3.1 Pembrolizumab is commissioned by NHS England. Providers are NHS hospital trusts
- 3.2 There will be a capacity impact on chemotherapy units for people who receive pembrolizumab. The resource impact template allows commissioners to assess the resource impact of any additional attendances required at provider services.
- 3.3 Pembrolizumab falls within the programme budgeting category 2H: Cancer, Urological.

4 How we estimated the resource impact

The population

- 4.1 In 2019, around 11,550 adults were diagnosed with kidney cancer in England [[Office for National Statistics 2021 - cancer registration statistics England 2019 data release](#)].
- 4.2 Of these, [Cancer Research UK](#) estimated around 80% have kidney cancer that is renal cell carcinoma.
- 4.3 The proportion of those with renal cell carcinoma and have surgery is estimated to be 64%. A factor that plays a role in surgery eligibility is cancer staging at initial presentation because patients with earlier stage disease are more likely to undergo surgery. Patients with renal cell carcinoma often present with early-stage disease thus increasing surgery eligibility. Table 5

below presents the stage of renal cell carcinoma at diagnosis ([National cancer registration and analysis service](#)) and the proportion of patients who undergo surgery at each stage [Kidney cancer treatment statistics | Cancer Research UK](#).

Table 5 Stage of renal cell carcinoma at diagnosis and the proportion of patients who undergo surgery in England

| Stage of Diagnosis | Proportion of patients diagnosed | Proportion of patients receiving surgery |
|---|----------------------------------|--|
| Stage I | 49.59% | 69.5% |
| Stage II | 8.38% | 78.2% |
| Stage III | 19.32% | 87.9% |
| Stage IV | 22.71% | 27.4% |
| Weighted average of patients receiving surgery | 100.00% | 64.2% |

- 4.4 Clinical experts stated that adjuvant treatment with pembrolizumab would only be offered to patients with clear cell or sarcomatoid renal cell carcinoma. [Kidney Cancer UK](#) estimates that 75% will have clear cell disease and sarcomatoid renal cancer is a very rare type of kidney cancer.
- 4.5 Clinical experts assume that 60% of those with renal cell carcinoma are at increased risk of recurrence after nephrectomy, with or without metastatic lesion resection.
- 4.6 Table 6 shows the number of people eligible for treatment with pembrolizumab.

Table 6 Number of people eligible for treatment in England

| Population | Proportion of previous row (%) | Number of people in 2026/27 |
|--|--------------------------------|-----------------------------|
| Adult population (adjusted for predicted growth each year) | | 46,263,200 |
| Incidence of kidney cancer in adults ¹ | 0.02% | 11,548 |
| Proportion of kidney cancer that is renal cell carcinoma ² | 80% | 9,238 |
| Proportion of people who have surgery ³ | 64% | 5,940 |
| Proportion with advanced renal cell carcinoma with clear cell disease ⁴ | 75% | 4,455 |
| Proportion of people at increased risk of recurrence after nephrectomy, with or without metastatic lesion resection ⁵ | 60% | 2,673 |
| Number of people estimated to have received pembrolizumab in 2026/27 ⁵ | 65% | 1,738 |
| ¹ Office for National Statistics 2021 - cancer registration statistics England 2019 data release (ICD code C64-66) ² Cancer Research UK ³ See table 5 ⁴ Kidney Cancer UK What Is Kidney Cancer (kcuk.org.uk) ⁵ Clinical opinion | | |

Assumptions

4.7 The resource impact template assumes that:

- Current treatment for people who have had renal cell carcinoma that has been treated surgically with either a partial or radical nephrectomy and is at increased risk of recurrence is routine surveillance.
- Pembrolizumab can be administered as a 200 mg dose once every 3 weeks or a 400 mg dose once every 6 weeks. The clinical experts noted that the 400 mg dosage is easier for people and reduces NHS resource use. The committee agreed that pembrolizumab can be administered at a 400 mg dose once every 6 weeks and that this would be preferable. Users can input the proportions of each dosing schedule into the template using local assumptions.
- The median treatment duration for people starting treatment pembrolizumab is 11.1 months.
- The resource impact over time sheet in the template allows users to input assumption on future incidence rates of kidney cancer.
- Adjuvant pembrolizumab is not expected to affect subsequent treatments because it is given to improve disease free survival as an adjuvant treatment in early-stage disease.
- There is expected to be a capacity impact on chemotherapy units for people who receive pembrolizumab.

Administration costs ([National Tariff 2022/23](#))

- SB12Z Deliver simple parenteral chemotherapy at first attendance £162.

About this resource impact report

This resource impact report accompanies the NICE guidance on [Pembrolizumab for adjuvant treatment of renal cell carcinoma](#) and should be read with it. See [terms and conditions](#) on the NICE website.

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