
Published: July 2018
Summary

NICE has recommended pembrolizumab as an option for untreated PD-L1-positive metastatic non-small-cell lung cancer (NSCLC) in adults.

We estimate that:

- 2,000 people with untreated PD-L1-positive metastatic NSCLC are eligible for treatment with pembrolizumab.
- 1,900 people will have pembrolizumab from year 2019/20 onwards once uptake has reached around 95% based on cancer drug fund (CDF) records as shown in table 1.

Table 1 Estimated number of people in England having pembrolizumab for untreated PD-L1-positive metastatic non-small-cell lung cancer (NSCLC) in adults

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>People having pembrolizumab each year</td>
<td>1,000</td>
<td>1,900</td>
<td>1,900</td>
<td>1,900</td>
<td>1,900</td>
</tr>
</tbody>
</table>

Pembrolizumab will be available through routine commissioning. The technology was previously funded from the CDF, but this will stop from 30 days after the publication of the guidance.

This resource impact template considers the budget impact on routine commissioning.

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 for untreated PD-L1-positive metastatic non-small-cell lung cancer (NSCLC) in adults whose tumours express PD-L1 (with at least a 50% tumour proportion score) and have no epidermal growth factor receptor or anaplastic lymphoma-kinase-positive mutations, only if:

- pembrolizumab is stopped at 2 years of uninterrupted treatment, or earlier in the event of disease progression and
- the company provides pembrolizumab according to the commercial access agreement.

2 Resource impact of the guidance

2.1 We estimate that:

- 2,000 people with untreated PD-L1-positive metastatic NSCLC are eligible for treatment with pembrolizumab.
- 1,900 people will have pembrolizumab from year 2019/20 onwards once uptake has reached around 95%.

2.2 The current treatment and future uptake figure assumptions are based on the CDF activity and are shown in the resource impact template. Table 2 shows the number of people in England who are estimated to have pembrolizumab by financial year.

<table>
<thead>
<tr>
<th>People having pembrolizumab each year</th>
<th>2018/19</th>
<th>2019/20</th>
<th>2020/21</th>
<th>2021/22</th>
<th>2022/23</th>
</tr>
</thead>
<tbody>
<tr>
<td>People having pembrolizumab each year</td>
<td>1,000</td>
<td>1,900</td>
<td>1,900</td>
<td>1,900</td>
<td>1,900</td>
</tr>
</tbody>
</table>
2.3 This report is supported by a local resource impact template. NHS England and Merck, Sharp & Dohme have a commercial access agreement that makes pembrolizumab available to the NHS at a reduced cost. The financial terms of the agreement are commercial in confidence. The discounted price of pembrolizumab can be put into the template and other variables may be amended. For enquiries about the commercial access agreement contact keiron.hughes@merck.com.

3 Implications for commissioners

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

3.2 Pembrolizumab will be available through routine commissioning and there will be a resource impact for specialised commissioning. The technology was previously funded from the Cancer Drugs Fund (CDF). Because pembrolizumab has been available through the early access to medicines scheme, NHS England and commissioning groups have agreed to provide funding to implement this guidance 30 days after publication. This resource impact report considers the impact on routine commissioning.

3.3 Pembrolizumab falls within the programme budgeting category 2D: Cancers and Tumours - Lung.

4 How we estimated the resource impact

The population

4.1 In 2016, around 38,400 cases of lung cancer were recorded in England (Office for National Statistics, 2018). It is estimated this number will reach 38,900 cases in 2018. Non-small-cell lung cancer accounts for between 85-90% of lung cancer cases in
England, with around half of people presenting with metastatic disease (stage IV) at the time of diagnosis.

4.2 Table 3 shows the number of people eligible for treatment with pembrolizumab.

### Table 3 Number of people eligible for treatment in England

<table>
<thead>
<tr>
<th>Population</th>
<th>Proportion of previous row (%)</th>
<th>Number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult population</td>
<td></td>
<td>43,482,790</td>
</tr>
<tr>
<td>Incidence of lung cancer¹</td>
<td>0.09</td>
<td>38,900</td>
</tr>
<tr>
<td>Proportion of lung cancer cases that are NSCLC²</td>
<td>88</td>
<td>34,200</td>
</tr>
<tr>
<td>Proportion of people with NSCLC, diagnosed at stage IV³</td>
<td>52</td>
<td>17,800</td>
</tr>
<tr>
<td>Proportion of people at stage IV who may receive treatment⁵</td>
<td>64</td>
<td>11,400</td>
</tr>
<tr>
<td>Proportion of people with assessable samples for PD-L1⁴</td>
<td>86</td>
<td>9,700</td>
</tr>
<tr>
<td>Proportion whose tumours have PD-L1-positive expression with at least 50% tumour proportion score⁴</td>
<td>30</td>
<td>2,900</td>
</tr>
<tr>
<td>Proportion of tumours that have no epidermal growth factor receptor or anaplastic lymphoma kinase-positive mutation⁴</td>
<td>81</td>
<td>2,400</td>
</tr>
<tr>
<td>Proportion of people who have a performance score of 0-1 ⁴</td>
<td>86</td>
<td>2,000</td>
</tr>
<tr>
<td>Total number of people eligible for treatment with pembrolizumab</td>
<td></td>
<td>2,000</td>
</tr>
<tr>
<td>Total number of people estimated to have pembrolizumab each year from year 2019/20</td>
<td></td>
<td>1,900</td>
</tr>
</tbody>
</table>

¹ Office for National Statistics 2018  
² NLCA annual report 2016 | RCP London  
³ Cancer Research UK 2015 - Lung cancer (incidence and stage at diagnosis)  

### Assumptions

4.3 The resource impact template assumes that:

• Currently people receive either a platinum based combination therapy or pemetrexed with cisplatin - NICE TA181

• The proportion of people currently receiving pemetrexed is 90% and the proportion receiving a platinum based chemotherapy is 10%. This is reflective of future market share estimates from the company submission for NICE TA181 (2009), updated for current estimates based on clinical opinion.

• The proportion of people who receive pemetrexed maintenance therapy is 58.4%. This is based on data from TA402 in the company budget impact model.

• The proportion of people currently having treatment with pembrolizumab who have received a previous treatment is around 58% and 42% have best supportive care. This assumes people who receive current standard therapies and whose disease progresses would not receive further standard therapies.

• Based on current usage in the CDF, future uptake of pembrolizumab for untreated NSCLC is estimated to reach around 95% in 2019/20.

• The average treatment duration for pembrolizumab for untreated NSCLC is 15.97 cycles (approximately 48 weeks). This is based on the latest data from the KEYNOTE-024 trial.

• In the future practice section of the resource impact template, the cost of treating people after their cancer has progressed are included.

• We have assumed that people treated with standard therapies (platinum based chemotherapy or pemetrexed with cisplatin) could get pembrolizumab after standard therapy if their disease progresses and people treated with pembrolizumab who have had no previous treatment could get platinum therapies or pemetrexed plus cisplatin if their disease progresses.
About this resource impact report

This resource impact report accompanies the NICE guidance on Pembrolizumab for untreated PD-L1-positive metastatic non-small-cell lung cancer (TA531) and should be read with it.

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