NICE National Institute for Health and Care Excellence

NICE guidance

Pembrolizumab for treating relapsed or refractory classical Hodgkin lymphoma in people 3 years and over

Technology appraisal guidance
Published: 1 May 2024

www.nice.org.uk/guidance/ta967

Your responsibility

The recommendations in this guidance represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, health professionals are expected to take this guidance fully into account, alongside the individual needs, preferences and values of their patients. The application of the recommendations in this guidance is at the discretion of health professionals and their individual patients and do not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Commissioners and/or providers have a responsibility to provide the funding required to enable the guidance to be applied when individual health professionals and their patients wish to use it, in accordance with the NHS Constitution. They should do so in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guidance partially replaces TA540.

1 Recommendations

1.1 Pembrolizumab is recommended as an option for treating relapsed or refractory classical Hodgkin lymphoma in people 3 years and over who have had at least 2 previous treatments and cannot have an autologous stem cell transplant (ASCT). It is recommended only if:

- they have already had brentuximab vedotin and
- pembrolizumab is stopped after 2 years of treatment or earlier if the person has a stem cell transplant or the disease progresses and
- the company provides it according to the commercial arrangement.

Why the committee made these recommendations

This evaluation reviews the evidence for pembrolizumab for treating relapsed or refractory classical Hodgkin lymphoma in people who have had brentuximab vedotin and cannot have an ASCT (NICE technology appraisal guidance TA540). It also reviews new data collected as part of the managed access agreement. The new evidence includes data from clinical trials and from people having treatment in the NHS in England.

When people with relapsed or refractory classical Hodgkin lymphoma cannot have an ASCT, they can have brentuximab vedotin. After that, they have standard care, which includes chemotherapy and radiotherapy. Pembrolizumab would be offered instead of standard care and stopped after 2 years or earlier if the person's condition gets worse or they are able to have a stem cell transplant. This is in line with how people had pembrolizumab in the clinical trials and during the managed access period.

There is no evidence directly comparing pembrolizumab with standard care. But, indirect comparisons suggest that people who have pembrolizumab live longer.

When considering the condition's severity, and its effect on quality and length of life, the most likely cost-effectiveness estimates are within what NICE considers an acceptable use of NHS resources. So, pembrolizumab is recommended.

2 Information about pembrolizumab

Marketing authorisation indication

2.1 Pembrolizumab (Keytruda, MSD) is indicated for 'the treatment of adult and paediatric patients aged 3 years and older with relapsed or refractory classical Hodgkin lymphoma who have failed autologous stem cell transplant (ASCT) or following at least two prior therapies when ASCT is not a treatment option'.

Dosage in the marketing authorisation

2.2 The dosage schedule is available in the summary of product characteristics for pembrolizumab.

Price

2.3 The list price is £2,630 per 100-mg vial (excluding VAT; BNF online accessed January 2024).

2.4 The company has a commercial arrangement. This makes 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 Committee discussion

The evaluation committee considered evidence submitted by Merck Sharp & Dohme, a review of this submission by the external assessment group (EAG), and responses from stakeholders. See the committee papers for full details of the evidence.

The condition

Treatment pathway

3.1 Treatment decisions for people with relapsed or refractory classical Hodgkin lymphoma who have had at least 2 previous treatments depend on whether they can have an autologous stem cell transplant (ASCT). For people who have had brentuximab vedotin and cannot have an ASCT there are no immunotherapies recommended for routine use. This evaluation reviews the evidence for pembrolizumab in people who have had brentuximab vedotin and cannot have an ASCT (NICE technology appraisal guidance on pembrolizumab for treating relapsed or refractory classical Hodgkin lymphoma, from here referred to as TA540). Clinical experts explained that the aim of treatment after brentuximab vedotin is to achieve sufficient disease response to do a potentially curative stem cell transplant (autologous or allogenic). They noted that the treatment pathway for relapsed or refractory classical Hodgkin lymphoma is changing. The experts considered that brentuximab vedotin is commonly used at third line when an ASCT cannot be done (based on NICE technology appraisal guidance on brentuximab vedotin for treating CD30-positive Hodgkin lymphoma, from here referred to as TA524). They added that after brentuximab vedotin, clinicians valued access to pembrolizumab through the Cancer Drugs Fund as an alternative to standard care. They noted that in addition to being a bridge to stem cell transplant, pembrolizumab increased tumour sensitivity to subsequent chemotherapy in some people. The NHS England Cancer Drugs Fund clinical lead (from here referred to as the Cancer Drugs Fund lead) explained that if pembrolizumab was used before brentuximab vedotin (based on NICE technology appraisal guidance on pembrolizumab for treating relapsed or refractory classical Hodgkin lymphoma after stem cell transplant or at least 2 previous therapies, from here referred to as TA772), then it would not be offered again after

brentuximab vedotin. The committee concluded that pembrolizumab is a valued treatment option for people with relapsed or refractory classical Hodgkin lymphoma who cannot have an ASCT, after having brentuximab vedotin.

Clinical effectiveness

Pembrolizumab study data

3.2 KEYNOTE-087 is an ongoing single-arm, open-label study of pembrolizumab. It includes 81 people with relapsed or refractory classical Hodgkin lymphoma after salvage chemotherapy and brentuximab vedotin but no ASCT. The company presented evidence from the 5-year data-cut (March 2021) of KEYNOTE-087. The committee considered the overall response rate to pembrolizumab was 64% as assessed by blinded, independent central review (primary endpoint). After a median follow up of 62 months, 24 people (30%) had died. At 12 months, 96% of people taking pembrolizumab were alive, at 24 months, 91% were alive and at 48 months, 77% were alive. The committee noted that overall-survival data from the trial was not mature. It also noted that 30% of people had a stem cell transplant (autologous or allogenic) after having pembrolizumab. The median time to stem cell transplant was 30 months. The committee noted that KEYNOTE-087 was not the source of overall-survival data in the company's economic model (see section 3.7 and section 3.8). The company explained that it considered the KEYNOTE-204 trial of pembrolizumab compared with brentuximab vedotin as the only relevant randomised source of evidence for overall survival. This trial investigated pembrolizumab use at third line and was the basis of TA772. The subgroup of people from KEYNOTE-204 who had not had an ASCT were considered in the current evaluation. The company considers the overall-survival results of the trial confidential so they cannot be reported here. The committee concluded that pembrolizumab improved overall survival in people with relapsed or refractory classical Hodgkin lymphoma. It also concluded that the trial evidence was suitable for decision making.

Pembrolizumab Systemic Anti-Cancer Therapy data

3.3 Real-world data on the use of pembrolizumab during managed access came from the Systemic Anti-Cancer Therapy (SACT) registry. Public Health England provided observational data from the SACT dataset for 215 people who had pembrolizumab through the Cancer Drugs Fund. Median follow up was 19 months. Median treatment duration with pembrolizumab was 5 months and median overall survival was not yet reached. At 12 months, 82% of people taking pembrolizumab were alive, at 24 months, 68% were alive and at 48 months, 55% were alive. The committee noted that overall-survival rates were lower in SACT than in the KEYNOTE-087 study (see section 3.2). It also noted that 30% of people in the SACT registry had a stem cell transplant (autologous or allogenic) after having pembrolizumab, which was the same proportion as KEYNOTE-087. The median time to stem cell transplant among 132 eligible people was 18 months. Clinical experts noted that more than 50% of people having pembrolizumab in SACT were over 50 and for almost 40% a stem cell transplant was unsuitable after treatment. The experts considered the SACT population to have severe disease. This was because many of those for whom a stem cell transplant was unsuitable after pembrolizumab, would likely have had best supportive care (such as palliative care consisting of steroids and radiotherapy) rather than standard care, consisting of chemotherapy and radiotherapy, in the NHS. The committee concluded that pembrolizumab improved overall survival in people with relapsed or refractory classical Hodgkin lymphoma. It also concluded that the SACT evidence was suitable for decision making but represented a patient population with relatively more severe disease than would be considered for pembrolizumab or standard care in the NHS.

Comparator evidence

3.4 The components of standard care were based on Cheah et al. (2016) with some adjustments based on Eyre et al. (2017). For evidence on standard care, the company used Cheah et al. (2016), Eyre et al. (2017) and the comparator evidence supporting TA524. Cheah et al. (2016) was a retrospective observational study done in the US that reported data from a mixture of chemotherapy regimens. The company noted that the study included people who had had brentuximab vedotin for relapsed classical Hodgkin lymphoma and had

later experienced disease progression. The committee noted that around 70% of people in Cheah et al. (2016) had an ASCT before brentuximab vedotin. It also noted that both the UK study Eyre et al. (2017) and the comparator evidence supporting TA524 considered standard care in a third-line setting, which was an earlier line of treatment than in KEYNOTE-087. Clinical experts considered that there is no established standard care at fourth line after brentuximab vedotin. They suggested that people would likely have more chemotherapy, or radiotherapy if there was a small area of active disease. They acknowledged that by this stage chemotherapy is not working well, so different treatments options are needed. They suggested that clinicians would use pembrolizumab instead of standard care if it was available. The company excluded best supportive care from the comparators it considered. It explained that advice from its clinical experts was that best supportive care means no active treatment, which was not a relevant option for the population in this evaluation. The committee recalled that around 40% of people who had pembrolizumab in SACT may have had best supportive care in clinical practice outside of SACT (see section 3.3). It also recalled that the aim of pembrolizumab after brentuximab vedotin is to achieve sufficient disease response to do a potentially curative stem cell transplant (see section 3.1). Clinical experts considered that best supportive care was a comparator for pembrolizumab in people who were not fit enough for a stem cell transplant. The committee concluded that there was a lack of established standard care after brentuximab vedotin. It also concluded that the standard-care evidence presented had limitations but was suitable for decision making when considering pembrolizumab as a bridge to potential future stem cell transplant.

Indirect treatment comparisons

3.5 The company explained that it did not have direct clinical-effectiveness evidence for pembrolizumab compared with standard care in people who had had brentuximab vedotin but not an ASCT. So, it explored a series of indirect comparisons to provide estimates of relative treatment effectiveness for overall survival. These comparisons used different methods and included alternative sources of evidence for pembrolizumab (see section 3.2 and section 3.3) and standard care (see section 3.4). The company acknowledged that all of the comparisons presented had limitations, which leads to uncertainty in the

comparative effectiveness estimate for pembrolizumab. It selected an unadjusted Bucher indirect comparison of pembrolizumab in KEYNOTE-204 and the comparator evidence supporting TA524 (both of which are directly compared with brentuximab vedotin) to be applied in its base case. This provided a hazard ratio for overall survival in favour of pembrolizumab, with a 95% confidence interval (CI) that did not cross the line of no effect. The company considers the hazard ratio to be confidential so it cannot be reported here. The EAG considered that the company's preferred approach was not suitable because both sources included comparators that were not relevant to this evaluation, including brentuximab vedotin. It agreed with the company that there were limitations with all indirect comparisons presented. The EAG considered that the approach with fewest limitations was the more direct but naive comparison of SACT data on pembrolizumab with Cheah et al. (2016) for standard care. The EAG noted that this considered the most relevant comparators and the most relevant line of treatment. The hazard ratio was 0.59 (95% CI 0.40 to 0.86) in favour of pembrolizumab. The committee noted that the different indirect comparisons all had limitations leading to high uncertainty in the relative treatment-effect estimates. Clinical experts commented that the evidence from SACT and Cheah et al. (2016) was not well matched because people in SACT had relatively severe disease (see section 3.3) and those in Cheah et al. (2016) were younger with most being fit for a prior stem cell transplant. The company suggested that in selecting its preferred approach it considered the different biases and concluded that bias due to an earlier line of treatment may be less important than comparing ill-matched populations. It noted that because brentuximab vedotin, the comparator in both KEYNOTE-204 and TA524, has established clinical effectiveness compared with standard care, the company's overall-survival estimate may be conservative. It also noted that around 37% of people who had pembrolizumab in KEYNOTE-204 had treatment at fourth line or later. The committee noted when selecting an indirect comparison the different biases need to be considered. It also noted that all of the comparisons had flaws. It concluded that, on balance, the company's preferred indirect comparison of KEYNOTE-204 and TA524 was acceptable but that the relative treatment effect was uncertain.

Economic model

Model structure

3.6 The company's model structure consisted of 4 distinct health states with an important point of change (known as a landmark) at 4 years. Before the landmark, the health states were 'alive pre-landmark' and 'death'. After the landmark, people were separated by stem cell transplant status based on the probability of stem cell transplant. Health states were 'alive post-landmark with no or a failed stem cell transplant', 'alive post-landmark with a successful stem cell transplant' and 'death'. The model time horizon was 40 years and treatment-effect waning was not applied. The company considered its structure to reflect that pembrolizumab can be used as a bridge to stem cell transplant, and that this can be a cure. It also noted that the model structure allowed people to have another round of chemotherapy after pembrolizumab. The company explained that the landmark point was at 4 years because this duration captured all stem cell transplant-related events. The EAG considered that the company's modelling approach was driven by features of the data it had. It also considered it was unclear whether the model structure had face validity. It noted that the pre-landmark phase was homogenous to stem cell transplant status, despite stem cell transplant being a key mechanism by which pembrolizumab affects outcomes. The EAG considered this homogeneity was against good modelling practice because it lacked transparency and could produce biased results of unknown impact. The committee noted that the company's model structure was atypical and associated with substantial uncertainty. It also noted that it does not use time-to-stem-cell-transplant data, which was an outcome specified in SACT. The EAG proposed that a more standard model structure could have been used, with 3 health states for 'no or failed stem cell transplant', 'successful stem cell transplant', and 'death'. This would have avoided having a landmark point. The company commented that it did not have access to all the data needed to populate this proposed model structure. It noted that time to stem cell transplant or death was not available for the standard-care arm or for people on pembrolizumab who had no or failed stem cell transplant. So it would need to use estimates, which would lead to uncertainty. The EAG acknowledged this but noted that the company's model also used estimates, including to inform the standard-care arm where alternative data might be available (see section 3.7). The Cancer Drugs Fund lead commented that while SACT collects data on stem

cell transplants after treatment with pembrolizumab and brentuximab vedotin, it would be very difficult to track treatment with standard care leading to a transplant. So, SACT data could not be used and published historical data would be needed. The committee agreed with the EAG that the company's model structure was atypical and was associated with high uncertainty and noted that the EAG's proposed alternative structure would also be associated with uncertainty. It also noted that to test the company's model structure, the EAG had explored a variety of scenarios (see sections 3.7 to 3.11). The committee considered that, on balance, it was not reassured that using a different model structure would substantially reduce the uncertainty in the modelling. So, it concluded that the company's model structure was acceptable for use in decision making despite the high uncertainty associated with it.

Pre-landmark survival

3.7 Baseline characteristics in the company's model were from KEYNOTE-087 and SACT. For the pembrolizumab arm, real-world data on overall survival and the probability of stem cell transplantation from SACT were used. To determine overall survival in the standard-care arm, the hazard ratio from the company's indirect treatment comparison (see section 3.5) was applied to the pembrolizumab arm. The company explored the impact of varying the hazard ratio used based on the different indirect treatment comparisons it performed. These had a small impact on the incremental cost-effectiveness ratio (ICER). The committee recalled that pembrolizumab could be given for up to 24 months. It noted that the pre-landmark period lasted 4 years and considered whether any benefit of pembrolizumab would be maintained after stopping treatment. It noted that the company applied treatment-effect waning at 3 to 5 years in a scenario analysis, which lead to a small increase in the ICER. Clinical experts explained that continued benefit after stopping was observed in the pembrolizumab trials, including evidence of sustained remission over 5 years in some people in KEYNOTE-087. They added that it is very likely that immunotherapies such as pembrolizumab increase survival in relapsed and refractory classical Hodgkin lymphoma compared with standard care. Considering its concerns with the company's model structure, the EAG having assumed the naive comparison of SACT data on pembrolizumab with Cheah et al. (2016) for standard care in its base case, explored scenarios with altered assumptions for pre-landmark

survival. Assuming a landmark at 2 years led to a small increase in the ICER. The EAG also explored the impact of removing the pre-landmark survival gain for pembrolizumab. This led to an increase in the ICER. The EAG explained that this extreme scenario was done to investigate possible double-counting of benefits rather than for decision making. Clinical experts added that it is unreasonable to assume no survival benefit for pembrolizumab pre-landmark. The committee concluded that the company's modelling of pre-landmark survival, including a treatment benefit for pembrolizumab, was acceptable. It also concluded that it was associated with high uncertainty because of the indirect comparisons used and the model structure.

Post-landmark survival

3.8 Transitions at the 4-year landmark were based on stem cell transplant status. The probability of having a stem cell transplant was derived from SACT for pembrolizumab and from a structured expert elicitation exercise done by the company for standard care. The probability of being cured by a stem cell transplant was also based on a structured expert elicitation exercise (for both arms). For the 'no or failed stem cell transplant' health state, overall survival from the non-transplant subgroup of KEYNOTE-204 (see section 3.2) was applied to SACT data for pembrolizumab, to estimate post-landmark overall survival. The company noted that the survival beyond 4 years was validated by its clinical experts. The company selected the exponential curve for the survival extrapolation in its updated base case. The EAG agreed with this curve selection but considered that a treatment benefit for pembrolizumab may not be seen in the post-landmark period in people with no or a failed stem cell transplant. So, the EAG preferred to assume there was no post-landmark survival treatment benefit for pembrolizumab in its base case (the hazard ratio was set to 1 for the comparison with standard care). The committee recalled comments from clinical experts about the potential for a prolonged benefit after stopping pembrolizumab (see section 3.7). Clinical experts commented that a complete response after treatment with pembrolizumab had been seen in trials in people who did not have a stem cell transplant. The company model assumed that more people on pembrolizumab would enter the 'successful stem cell transplant' health state than those on standard care. The EAG explored the impact of assuming both arms had an equal probability of a stem cell transplant and a stem cell transplant cure. This

led to an increase in the ICER. The company model also assumed that people having a successful stem cell transplant would have general population mortality. Both the company and EAG explored the impact of increasing the mortality risk in people who had a successful stem cell transplant. This led to a small increase in the ICER. The committee concluded that the company's assumptions for the 'successful stem cell transplant' health state were acceptable. It also concluded that it was reasonable to assume some continued benefit of pembrolizumab post-landmark in people with no or a failed stem cell transplant.

Pre-landmark utilities

3.9 The company considered KEYNOTE-204 to be the only suitable source of available comparative EQ-5D-3L data. The committee recalled that 37% of people in KEYNOTE-204 had treatment at fourth line or later (see section 3.5). The EAG noted that the company's utility values (pembrolizumab 0.837, standard care 0.742; treatment difference 0.095) were derived by simple naive means. It added that the company had also explored an alternative mixed effect modelling approach to derive the utility values. The EAG preferred this approach and used the modelled pre-landmark utility values in its base case (pembrolizumab 0.816, standard care 0.730; treatment difference 0.085). The committee noted that the differences between the company and EAG pre-landmark utility values were small and that these had a small impact on the ICER. It concluded that both approaches were plausible.

Post-landmark utilities

3.10 The company's utilities for people who had no or a failed stem cell transplant were based on a 'progressed disease' state in KEYNOTE-204 (pembrolizumab 0.807, standard care 0.671; treatment difference 0.136). The EAG noted that comparative data for the 'progressed disease' state were collected for up to 1 year only. It considered that health-related quality of life in people who had no or a failed stem cell transplant would not differ between treatment arms in the post-landmark period. It also assumed it would be the same as those on standard care pre-landmark (0.730). Clinical experts suggested that even for people not cured by a stem cell transplant, some health-related quality of life benefit with

pembrolizumab would be expected after the 4-year landmark, given that continued survival benefit was observed in trials (see section 3.7). The committee heard from patient experts that the important aspects of health-related quality of life in relapsed or refractory classical Hodgkin lymphoma vary between individuals. Patient experts commented that the ability to have a stem cell transplant will be important to some people. But for others the ability to cope in daily life with their disease will be more important to maintaining their health-related quality of life. For people who had a successful stem cell transplant, the company applied general population utility (0.864) to both arms. The EAG preferred to assume a less optimistic value (0.770) in both arms based on TA524. Patient experts considered that with or without a stem cell transplant, someone with the condition will never have the same health-related quality of life as someone who has not had cancer. Clinical experts explained that health-related quality of life will be different depending on whether a person has had an autologous or allogenic stem cell transplant. This is because allogenic stem cell transplant is associated with a greater mortality rate because of the life-long risk of immune rejection. They considered that, overall, the utility value for a successful stem cell transplant may be below that of the general population but higher than someone who has not had a stem cell transplant or has had a failed stem cell transplant. The committee concluded that for people who have a successful stem cell transplant, the likely utility value lies somewhere between the company and EAG preferred value. It also concluded that for people who have not had a stem cell transplant or have had a failed stem cell transplant, it preferred the company's utility values.

Costs

3.11 To inform costs for the standard-care arm of the economic model, the company used blended comparators based on Cheah et al. (2016), Eyre et al. (2017) and clinical expert opinion. It assumed that the different chemotherapy and radiotherapy components were used in equal proportions (14% each). The company explained that it assumed equal proportions for all because its clinical experts could not give confident estimates of what proportions would be used in the fourth-line setting. It explored an alternative assumption of 100% bendamustine (an inexpensive option) for standard care in its scenario analyses. This led to a small increase in the ICER. The EAG acknowledged that there is a

lack of information about what the proportions of included treatments would be. It preferred to reduce the assumed proportions of gemcitabine-based chemotherapy and radiotherapy, based on Eyre et al. (2017), and increase the proportions of bendamustine and mini-BEAM (carmustine, etoposide, cytarabine, melphalan) used in its base case. It also explored the impact of removing all standard-care costs, which led to a small increase in the ICER. Clinical experts disagreed with the EAG's adjustments to the standard-care proportions. They considered that bendamustine use is very low because of poor response rates. The also considered that mini-BEAM is only used in very select patients because it is an intensive treatment. The committee noted that there is uncertainty in the composition and proportions of standard care. It also noted that the company had included the costs of both autologous and allogenic stem cell transplants in its model. The committee concluded that the company's costing of stem cell transplant and standard care, including proportions assumed, were reasonable.

Severity

3.12 The committee considered the severity of the condition (the future health lost by people living with the condition and having standard care in the NHS). The committee may apply a greater weight to quality-adjusted life years (QALYs) if technologies are indicated for conditions with a high degree of severity. This is called a severity modifier. The company provided absolute and proportional QALY shortfall estimates in line with NICE's health technology evaluations manual. The EAG also provided QALY shortfall estimates. Both the company and EAG's estimates resulted in a severity weight of 1.2. So, the committee concluded that the severity weight of 1.2 applied to the QALYs was appropriate.

Cost-effectiveness results

Committee's preferred assumptions

3.13 The committee's preferred assumptions for the cost-effectiveness modelling of pembrolizumab compared with standard care were for the model to use:

- the company's unadjusted Bucher indirect comparison of KEYNOTE-204 and TA524 to inform overall survival in the pre-landmark phase of the model (see section 3.5)
- the company's assumption of some treatment effect of pembrolizumab post-landmark in people who have no or a failed stem cell transplant (see section 3.8)
- the pre-landmark utility values of either the company or EAG because both approaches were considered plausible (see section 3.9)
- the company's assumption of some utility benefit of pembrolizumab post-landmark in people who have no or a failed stem cell transplant (see section 3.10)
- the utility estimate in between the company and EAG estimate for people who have a successful stem cell transplant (see section 3.10)
- the company's assumed proportions of standard-care treatment for costs (see section 3.11)
- the severity weight of 1.2 applied to the QALYs (see section 3.12).

Acceptable ICER

3.14 NICE's manual on health technology evaluation notes that above a most plausible ICER of £20,000 per QALY gained, judgements about the acceptability of a technology as an effective use of NHS resources will take into account the degree of certainty around the ICER. The committee will be more cautious about recommending a technology if it is less certain about the ICERs presented. The committee noted that there was some uncertainty in the modelling of pembrolizumab compared with standard care. In particular, around:

- the relative treatment-effect estimate, which was highly uncertain (see section 3.5)
- the company's model structure, which was highly uncertain (see section 3.6)
- the company's modelling of pre-landmark survival (see section 3.7), which

was influenced by the relative treatment-effect estimate and the company's model structure

- the composition and proportions of standard care assumed (see section 3.11).

The committee agreed that given the uncertainty, an acceptable ICER would be around £20,000 per QALY gained, which is within the range normally considered a cost-effective use of NHS resources (£20,000 to £30,000 per QALY gained).

Company and EAG cost-effectiveness estimates

3.15 The company's and EAG's base-case ICERs, including the 1.2 QALY weighting for severity, were below £20,000 per QALY gained. The exact ICERs cannot be reported here because of confidential commercial discounts. Taking account of the committee's preferred assumptions (see section 3.13), and the impact of the company's and EAG's scenario analyses that were considered relevant to explore the uncertainty and inform decision making (see sections 3.7 to 3.11), the committee was satisfied that the most plausible ICERs were below £20,000 per QALY gained. Therefore, the most likely cost-effectiveness estimates were within what NICE considers an acceptable use of NHS resources.

Other factors

Equality

3.16 The committee did not identify any equality issues.

Innovation

3.17 The committee considered if pembrolizumab was innovative. It did not identify additional benefits of pembrolizumab not captured in the economic modelling. So

the committee concluded that pembrolizumab was not innovative for treating relapsed or refractory classical Hodgkin lymphoma.

Conclusion

Recommendation

3.18 Pembrolizumab is recommended for use in routine commissioning for treating classical Hodgkin lymphoma in people 3 years and over who have had at least 2 previous treatments, cannot have an ASCT, and have already had brentuximab vedotin.

4 Implementation

4.1 Section 7 of the National Institute for Health and Care Excellence (Constitution and Functions) and the Health and Social Care Information Centre (Functions) Regulations 2013 requires integrated care boards, NHS England and, with respect to their public health functions, local authorities to comply with the recommendations in this evaluation within 3 months of its date of publication

4.2 Chapter 2 of Appraisal and funding of cancer drugs from July 2016 (including the new Cancer Drugs Fund) – A new deal for patients, taxpayers and industry states that for those drugs with a draft recommendation for routine commissioning, interim funding will be available (from the overall Cancer Drugs Fund budget) from the point of marketing authorisation, or from release of positive draft guidance, whichever is later. Interim funding will end 90 days after positive final guidance is published (or 30 days in the case of drugs with an Early Access to Medicines Scheme designation or cost comparison evaluation), at which point funding will switch to routine commissioning budgets. The NHS England Cancer Drugs Fund list provides up-to-date information on all cancer treatments recommended by NICE since 2016. This includes whether they have received a marketing authorisation and been launched in the UK.

4.3 The Welsh ministers have issued directions to the NHS in Wales on implementing NICE technology appraisal guidance. When a NICE technology appraisal guidance recommends the use of a drug or treatment, or other technology, the NHS in Wales must usually provide funding and resources for it within 2 months of the first publication of the final draft guidance.

4.4 When NICE recommends a treatment 'as an option', the NHS must make sure it is available within the period set out in the paragraphs above. This means that, if a patient has classical Hodgkin lymphoma and the doctor responsible for their care thinks that pembrolizumab is the right treatment, it should be available for use, in line with NICE's recommendations.

5 Evaluation committee members and NICE project team

Evaluation committee members

The 4 technology appraisal committees are standing advisory committees of NICE. This topic was considered by committee A.

Committee members are asked to declare any interests in the technology being evaluated. If it is considered there is a conflict of interest, the member is excluded from participating further in that evaluation.

The minutes of each evaluation committee meeting, which include the names of the members who attended and their declarations of interests, are posted on the NICE website.

Chair

Radha Todd
Chair, technology appraisal committee A

NICE project team

Each evaluation is assigned to a team consisting of 1 or more health technology analysts (who act as technical leads for the evaluation), a technical adviser and a project manager.

Catherine Spanswick
Technical lead

Joanna Richardson
Technical adviser

Thomas Feist
Project manager

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