NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Draft guidance consultation

Dupilumab for treating severe chronic rhinosinusitis with nasal polyps

The Department of Health and Social Care has asked the National Institute for Health and Care Excellence (NICE) to produce guidance on using dupilumab in the NHS in England. The evaluation committee has considered the evidence submitted by the company and the views of non-company stakeholders, clinical experts and patient experts.

This document has been prepared for consultation with the stakeholders. It summarises the evidence and views that have been considered, and sets out the recommendations made by the committee. NICE invites comments from the stakeholders for this evaluation and the public. This document should be read along with the evidence (see the committee papers).

The evaluation committee is interested in receiving comments on the following:

- Has all of the relevant evidence been taken into account?
- Are the summaries of clinical and cost effectiveness reasonable interpretations of the evidence?
- Are the recommendations sound and a suitable basis for guidance to the NHS?
- Are there any aspects of the recommendations that need particular consideration to ensure we avoid unlawful discrimination against any group of people on the grounds of age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex or sexual orientation?

Issue date: July 2025

Note that this document is not NICE's final guidance on this technology. The recommendations in section 1 may change after consultation.

After consultation:

- The evaluation committee will meet again to consider the evidence, this evaluation consultation document and comments from the stakeholders.
- At that meeting, the committee will also consider comments made by people who are not stakeholders.
- After considering these comments, the committee will prepare the final draft guidance.
- Subject to any appeal by stakeholders, the final draft guidance may be used as the basis for NICE's guidance on using dupilumab in the NHS in England.

For further details, see NICE's manual on health technology evaluation.

The key dates for this evaluation are:

- Closing date for comments: 13 August 2025
- Second evaluation committee meeting: 03 September 2025
- Details of membership of the evaluation committee are given in section 4

1 Recommendations

1.1 Dupilumab should not be used as an add-on to intranasal corticosteroids to treat severe chronic rhinosinusitis with nasal polyps that is not controlled well enough by systemic corticosteroids or surgery in adults.

1.2 This recommendation is not intended to affect treatment with dupilumab that was started in the NHS before this guidance was published. People having treatment outside this recommendation may continue without change to the funding arrangements in place for them before this guidance was published, until they and their NHS healthcare professional consider it appropriate to stop.

What this means in practice

Dupilumab is not required to be funded in the NHS in England to treat severe chronic rhinosinusitis with nasal polyps that is not controlled well enough by systemic corticosteroids or surgery in adults. So, it should not be used routinely in the NHS in England.

This is because there is not enough evidence to determine if dupilumab is value for money in this population.

Why the committee made these recommendations

Usual treatment for severe chronic rhinosinusitis with nasal polyps includes corticosteroids and sinus surgery.

For this evaluation, the company asked for dupilumab to be considered only for people who have had at least 1 surgery. This does not include everyone who it is licensed for.

Clinical trial evidence shows that dupilumab reduces symptoms and nasal polyp size compared with usual treatment.

But there are uncertainties in the economic model. This is because of:

- the data used to estimate how well dupilumab works in the long term
- how many people will need another surgery and how long they have to wait for it
- how quality of life is estimated.

Because of the uncertainties in the economic model, it is not possible to determine the cost-effectiveness estimates for dupilumab. But the most likely estimate is above the range that NICE considers a cost-effective use of NHS resources. So, dupilumab should not be used.

2 Information about dupilumab

Marketing authorisation indication

2.1 Dupilumab (Dupixent, Sanofi) is indicated 'as an add-on therapy with intranasal corticosteroids for the treatment of adults with severe CRSwNP [chronic rhinosinusitis with nasal polyps] for whom therapy with systemic corticosteroids and/or surgery do not provide adequate disease control'.

Dosage in the marketing authorisation

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

Price

2.3 Dupilumab costs £1,264.89 per pack of 2 prefilled pens or prefilled syringes (excluding VAT, BNF online accessed July 2025). The company has a commercial arrangement, which would have applied if dupilumab had been recommended.

Carbon Reduction Plan

2.4 Information on the Carbon Reduction Plan for UK carbon emissions for Sanofi will be included here when guidance is published.

3 Committee discussion

The evaluation committee considered evidence submitted by Sanofi, 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.

Severe chronic rhinosinusitis with nasal polyps

3.1 Rhinosinusitis is inflammation of the nasal cavity. Chronic rhinosinusitis is when it lasts for longer than 12 weeks. Up to 30% of people with chronic rhinosinusitis also have nasal polyps, which are non-cancerous growths in the sinonasal passages. Symptoms include loss of smell and taste, a blocked and runny nose, facial pain, headache, snoring, obstructive sleep apnoea and fatigue. Symptoms may last many years. Severe chronic rhinosinusitis with nasal polyps (CRSwNP) is defined as uncontrolled symptoms rated on a visual analogue scale as 8 to 10, and evidence of disease on endoscopy. The patient experts said the most important symptom was loss of smell, especially because it also affects taste. They said it reduces the pleasure in life and can also be dangerous because people cannot smell smoke or a gas escape. They described how the condition affected them physically and mentally. It worsened ability to sleep, socialising, and family and work life. They also described their frustration with how long it takes to get a diagnosis. The committee concluded that severe CRSwNP is a distressing condition with a serious impact on people's lives.

Clinical management

Treatment options

3.2 There are no approved medicines specifically for CRSwNP in the UK and treatment aims to control symptoms only. The main treatment is inhaled nasal corticosteroids, which are used throughout the treatment pathway. Short-term oral (systemic) corticosteroids can be offered to treat acute exacerbations to reduce polyp size and relieve symptoms. If people still

have symptoms, endoscopic sinus surgery to remove the polyps is an option. But the clinical experts noted this does not treat the underlying inflammation. And it will not resolve symptoms for about 10% of people, who continue to have severe disease. The polyps can also regrow. The clinical experts said that people who got no benefit from surgery have the greatest need for another treatment option. People can have surgery again (revision surgery), and some have it repeatedly. The clinical experts said about 5% of people have multiple operations. The patient experts described their frustration with the available treatments because, after surgery and corticosteroids, there are no more options. Their only option is to try the same failed treatments again. The patient experts explained that it can take about 3 months to recover from sinus surgery, that it might be effective for only a short time, and that some people have to take corticosteroids again soon after. They noted the serious side effects associated with oral corticosteroids, and how hard it is to live with knowing that they are risking their overall health to relieve their symptoms. The clinical experts said that repeated courses of oral corticosteroids are associated with obesity, hypertension, cataracts and osteoporosis. The committee acknowledged the lack of effective treatment options for CRSwNP and concluded that there was a need for an effective, targeted treatment.

Population and comparators

3.3 The company's comparator was established clinical management, defined as a daily inhaled nasal corticosteroid (the company used mometasone furoate in the key clinical trials), and oral corticosteroids and revision surgery as needed. It positioned dupilumab for people who had had at least 1 sinus surgery. The clinical experts agreed the comparator and the positioning were appropriate. One noted that the first surgery increases access to corticosteroids, so makes treatment more effective. Both clinical experts agreed that dupilumab would be effective after just 1 surgery, even in people who had complete nasal obstruction because of polyps.

One clinical expert noted in their submission that they believed that treatment should be available in a small number of specialist Ear, Nose and Throat (ENT) clinics that offer all treatment options, for example comprehensive surgery and aspirin desensitisation. They suggested that this would mean that if people needed revision surgery within 5 years, surgery and postoperative care could be optimised, and if this failed then dupilumab could be considered. The committee concluded it was appropriate to compare dupilumab with established clinical management, defined as corticosteroids and sinus surgery, in people who had had at least 1 surgery, for this evaluation.

Clinical effectiveness

Key clinical trials: SINUS-24 and SINUS-52

3.4 Dupilumab 300 mg once every 2 weeks plus established clinical management was compared with placebo plus established clinical management in 2 trials: SINUS-24 and SINUS-52. Both were international, phase 3, placebo-controlled, double-blind, randomised trials in adults with previously treated severe CRSwNP. The primary outcome was change from baseline in bilateral nasal polyp score (NPS) and nasal congestion score at 24 weeks. Secondary outcomes included changes in health-related quality of life measured on the 22-item Sinonasal Outcomes Test (SNOT-22). SINUS-24 (n=276) was 24 weeks long and included 19 UK patients. SINUS-52 (n=448) was 52 weeks long and did not include any UK patients. Both trials included people who had had sinus surgery and who had not. The company's submission focused on the prior surgery subgroup. Pooled results at 24 weeks from SINUS-24 and SINUS-52 showed that dupilumab significantly improved nasal congestion and reduced polyps compared with established clinical management. The company defined minimum clinically important differences as 1 point for nasal congestion and 1 point for NPS (based on a post-hoc pooled analysis of the SINUS data), and 8.9 points for SNOT-22 (clinically validated). The bilateral NPS score for people on dupilumab was 1.99

points lower than for established clinical management (least squares mean; 95% confidence interval -2.29 to -1.68, p<0.0001). For nasal congestion it was 0.98 points lower (least squares mean; -1.13 to -0.83, p<0.0001). Results from SINUS-52 at 52 weeks were also significantly better than for established clinical management. SNOT-22 results at 24 weeks were significantly better for dupilumab than for established clinical management, with a reduction of 20.89 points (least squares mean; 95% CI -24.18 to -17.60, p<0.0001). Results at 52 weeks were also significantly better for dupilumab. The committee concluded that dupilumab is an effective treatment for CRSwNP.

Longer-term data: AROMA trial

3.5 Longer-term data for dupilumab was available from the AROMA trial, a 24-month observational, open-label, single-arm registry study (n=552 at baseline). People in the trial were prescribed dupilumab in line with local clinical practice (AROMA was an international trial with no UK patients). Primary outcomes included nasal congestion score and SNOT-22. The difference in trial design compared with the SINUS trials, with no comparator treatment, meant that it could not be incorporated into the pooled analysis. A large proportion of people in the study had not had sinus surgery. The mean change from baseline for the intention-to-treat (ITT) population (that is, people who had and had not had surgery) in SNOT-22 was -27.3 points (standard deviation 22.61) at 12 months and -18.0 points (standard deviation 16.63) at 24 months. The EAG said that the results suggested a sustained benefit of dupilumab for health-related quality of life throughout the first year of treatment. But it noted the smaller mean change from baseline at 24 months compared with 12 months suggested the treatment effect may start to wane after a year. But because there was no comparator arm, it was not clear if benefits with established clinical management also decline. The company clarified that because AROMA is an ongoing registry study, only 29 patients had completed 24 months of follow up and some would also have missing

data. The committee concluded that the data for dupilumab's relative treatment effectiveness beyond 1 year was uncertain because of the lack of a comparator arm in AROMA.

Economic model

Company's modelling approach

3.6 The company's model had 2 parts, a cohort-level decision tree for the first year and a longer-term Markov model after year 1. In the decision tree, response was assessed at 24 weeks and 52 weeks. Response was defined as a change from baseline of at least 1 in NPS and at least 8.9 in SNOT-22. If people needed to have oral corticosteroids or revision surgery, that was classified as non-response. Responders continued on dupilumab but non-responders stopped treatment. Response and need for surgery determined in which state people entered the Markov model. The Markov model had a 1-year cycle length and 4 states: controlled disease, inadequately controlled disease (a temporary state for 1 cycle to capture decline in health-related quality of life before the condition becomes uncontrolled), 'post-op' controlled and uncontrolled. People could move from uncontrolled or inadequately controlled to post-op controlled after revision surgery. The EAG was mainly satisfied with the model structure. But it noted that the 1-year cycle length was not in line with dupilumab administration, so may not capture the timings of important clinical events. The committee concluded that the model structure was appropriate.

Treatment effect in the first year of the model

3.7 Treatment effect in the first year of the model (the decision tree) used pooled response data, based on NPS and SNOT-22 scores from the SINUS trials. But, in the company's submission, clinical effectiveness was assessed using NPS and nasal congestion scores. The EAG said that using different outcomes to indicate treatment response could result in different estimates of the relative effectiveness of dupilumab and established clinical management between the clinical and economic

analyses. Also, if the response measure used in the economic analysis differs to that expected to be applied in clinical practice it would mean differences in the cost-effectiveness of dupilumab. The EAG added that using the combined response criteria of NPS plus SNOT-22 in the model meant there were fewer people in the analysis, which increased uncertainty in the results. The EAG's clinical experts said that SNOT-22 was commonly used in clinical practice to assess response to treatment. One said they would not stop treatment with dupilumab if symptoms improved on the SNOT-22 but not the NPS. The EAG used the company's analysis in its base case but explored using only SNOT-22 results for response in a scenario. The clinical experts said that both measures were important because SNOT-22 measured symptoms that were important to patients, while the NPS provided an objective measure. One clinical expert, who was one of the investigators on the SINUS trials, said NPS and nasal congestion scores had been used for the clinical submission because they were the measures preferred by the regulators. The committee noted the EAG's concerns, but took into account the clinical experts' views on the most appropriate response measures. It concluded that capturing both patients' quality of life using SNOT-22 and an objective measure from the NPS were important to robustly assess response.

Treatment effect after 1 year

3.8 After 1 year (the Markov part of the economic model) the company used discontinuation rates from AROMA to estimate transition probabilities for movement from the controlled to the inadequately controlled health states for people on dupilumab. The EAG said this approach introduced uncertainty. It noted the different designs of the 2 SINUS trials and AROMA. Only SNOT-22 data was available from AROMA, while NPS plus SNOT-22 was used to define response in the first year of the model (the decision tree). The EAG noted that, because AROMA was a single-arm trial with no comparator, it could not provide long-term data on ECM. So, the ECM arm of the model was still informed by the SINUS data. The EAG

said it was inconsistent to use 2 different approaches for the 2 model arms. It said that if the AROMA data was used to inform treatment effect beyond 1 year, it should be formally matched to the SINUS trials. The EAG noted it should also account for differences in how responders were classified in the 2 studies – for example, if only SNOT-22 data is used, and if use of oral corticosteroids or revision surgery is classed as non-response. The EAG used the pooled SINUS data to estimate treatment effect beyond 1 year in its base case. It also explored the sensitivity of the results to a higher discontinuation rate because of lack of effectiveness in a provided scenario. The company said that AROMA provided real-world evidence of continued benefit with dupilumab. And it noted that sustained benefits of dupilumab had been seen in other disease areas (asthma and atopic dermatitis), and for other biological medicines in CRSwNP. The committee was concerned about the generalisability of the AROMA data to the patient population being evaluated, because it included a large proportion of people who had not had sinus surgery, which the company included in its base-case analysis beyond 12 months. It also noted that it included people having dupilumab for the first time, and asked if only AROMA data from 12 months onwards should be used in the analysis. The company confirmed that it only used data from 12 to 24 months from AROMA in its base case. It said that, if it had used only the prior surgery subgroup for its base case analysis, the discontinuation rate would have been lower. So, the company considered it a conservative approach to use the full population. The clinical experts supported this point, saying that response on dupilumab was better for people who had had surgery, so including people who had not had surgery underestimated the benefit. They also said that discontinuation was highest in the first 6 months and mostly because of side effects, not a lack of effectiveness. The committee noted that it preferred to see evidence from the population relevant to the evaluation, rather than having to make a qualitative judgement about conservative estimates and actual use in the NHS. It noted the uncertainty introduced by using studies with different designs for treatment

effectiveness in the first year and effectiveness beyond 1 year. The committee concluded that it would prefer to see treatment effect in the model beyond 1 year informed by AROMA data formally matched to the SINUS trials that accounts for differences in how 'responders' are classified.

Transition probabilities from the post-op controlled to the uncontrolled health state

3.9 The company's model assumed that people could either remain in the post-op controlled health state, or move to the uncontrolled state when their symptoms become uncontrolled again, at a rate of 42.8% per year. This rate was estimated from a study by Benson et al. (2023). The company calculated the rate using the mean time between second and third surgery from Benson et al. and advice from its clinical experts that people had to wait about 2 years for revision surgery, and that symptoms become uncontrolled quickly in 40% to 50% of people. The company's model also assumed people could move from the uncontrolled health state into the post-op controlled health state, at a rate of 15.1% per year. This rate was also estimated from the annual probability of surgery in Benson et al. The EAG's clinical experts noted that rates of loss of control and revision surgery varied. The EAG used the company's value in its base case but explored reducing the waiting time for surgery from 2 years to 1 year in a scenario, which reduced the transition probability for moving from post-op controlled to uncontrolled to 12.1%. This increased the incremental cost-effectiveness ratio (ICER) considerably, but the EAG noted that this was the upper bound of what the ICER was likely to be. The clinical experts said that the mean waiting time for surgery in the ENT service was among the highest of all the specialties. They also noted that waiting time for sinus surgery had 3 phases: first the wait to see a GP, then the wait to see a specialist after being referred (about 12 months) and then time on the waiting list for surgery (at least 12 months). There can also be an additional wait if a CT scan is requested. The clinical

experts said it would be almost impossible to wait only 1 year for revision surgery, and at least 2 years was more likely. They also said that a rate of 42.8% per year for CRSwNP to become uncontrolled again after surgery was reasonable, noting that 10% of people still have severe symptoms despite surgery. They said that quality of surgery and postoperative care was very variable, and even with the best care surgery is not always effective. SINUS UK provided evidence from a survey of 51 people that showed that half had their symptoms return with 6 months of surgery. The clinical experts also noted that the polyps regrow within 6 months in about a third of people. The committee questioned the transition probabilities used and the different stages that people in the uncontrolled health state were at. It considered if the rate of 15.1% having revision surgery per year was likely to be too low, given the wait time for surgery is 2 years. It noted the annual rate of revision surgery could be a function of waiting time, rather than using data from Benson et al. The company clarified that the uncontrolled health state included not only people whose condition had become uncontrolled after revision surgery, but also people whose condition had become uncontrolled on dupilumab or established clinical management, and people ineligible for surgery. So, the rate of 15.1% reflects the annual probability of having revision surgery for everyone in the uncontrolled health state, not just people waiting for surgery. One of the clinical experts said that in their experience no-one was ineligible for revision surgery but there were people who were unwilling to go through the procedure again. The company noted that people unwilling to have surgery were not specifically included in the model. The EAG said it had concerns about how the transition probabilities had been calculated for the full loop of this part of the model – that is, from post-op controlled to uncontrolled, and from uncontrolled to post-op controlled after revision surgery. It said it was not clear how or why the data had been chosen to calculate it. The committee decided there was a lot of uncertainty around the transition probability from the post-op controlled to the uncontrolled health state (42.8% per year), and the rate of revision surgery (15.1% per

year). It concluded that it would like to see more clarity on the equation used to calculate the 42.8% transition probability, including what data went into the equation and why, and any assumptions made around it. It also concluded that it was problematic to include different groups of people in a single uncontrolled health state because they have different probabilities of having revision surgery and transitioning to the post-op controlled health state. The committee concluded it would like more clarity on the proportions of different types patients in the uncontrolled health state to inform the annual rate of revision surgery.

Utility values

Source of utility values

3.10 Although the company collected health-related quality of life in the SINUS trials using the EQ-5D (NICE's reference case), it did not use this data to inform health state utility values in the model. Instead, it used SNOT-22 data from the SINUS trials mapped to EQ-5D. The company said that this was because the EQ-5D values collected in the trial were not plausible because, for example, responders at week 52 showed a score higher than the UK general population. It also said the EQ-5D was not good at capturing quality of life for people with CRSwNP, particularly around loss of smell and poor sleep. The company said the EQ-5D had a 'ceiling effect' in this population – a quarter of people in the trial with severe uncontrolled CRSwNP reported a 'perfect' health state with the EQ-5D, so it was not possible to capture any benefit for them. It added that its clinical experts agreed that the SNOT-22 values looked more plausible than the EQ-5D values. The EAG noted that it was common for utility values to be higher in clinical trials than in real life, and that it was standard practice to adjust for this by capping the data at general population values and adjusting proportions in the health states to keep the relative difference between them. The EAG said that using SNOT-22 had not been justified adequately. It noted that NICE's health technology evaluations manual says that varying from EQ-5D must be justified by a synthesis of peer-

reviewed literature. It also noted that if the EQ-5D does not capture health-related quality of life in CRSwNP well enough, the problem remains if SNOT-22 is mapped to the EQ-5D. The EAG referred to NICE Decision Support Unit technical support document 22, which says that mapping to EQ-5D is not appropriate if EQ-5D is considered inappropriate for measuring health benefits in the condition under consideration. NICE's health technology evaluations manual also says that mapping from another health-related quality of life measure should be used when EQ-5D data is not available. And it says that if evidence shows the EQ-5D is not appropriate, then the next most appropriate way to estimate quality adjusted life years (QALYs) is using another preference-based measure. The EAG also noted that dupilumab showed a substantial QALY gain in the company's analysis, despite not showing a survival gain, and that choice of utility values was the main driver of the ICER. The EAG noted issues with the model used to map SNOT-22 to EQ-5D (Crump et al. 2017). For example, 2 of the Crump models implausibly suggest loss of smell and lack of sleep improve quality of life. The model that the company chose has the same problem, the EAG said, but obscures the relationship by combining loss of smell and lack of sleep with other components, for example facial pain and pressure. The EAG said there were also issues with the generalisability of the Crump et al. model – it was in people with chronic rhinosinusitis waiting to have surgery, who would be in the uncontrolled health state. It said this meant it was not a good representative sample for people in other health states. The committee queried why the company had chosen to use Crump et al., which used a sample of non-UK patients and had a smaller dataset than the SINUS trials. The company said that Crump was the best model to use because it was the only peer-reviewed mapping algorithm available for the condition. It said that the SNOT-22 scores for people in the sample population for the model ranged from 0 to 103 (maximum score is 110). This suggested that it was a representative sample, with all levels of disease control, for the population in this evaluation. The EAG chose to

use utility values from the trial in its base case. To address the issue of high utility values, it used the EQ-5D data capped at general population age and sex-matched utility values, with a multiplier applied to subsequent health states to retain the proportional differences between health states. It noted that this was the best analysis for the data available. But its preferred option would be a regression model excluding SNOT-22 because it is not an independent variable. The company noted that SNOT-22 was the most widely used chronic rhinosinusitis-specific patient-reported measure to record quality of life. The patient experts agreed, saying that SNOT-22 much more accurately reflected the impact of their symptoms. They explained that the EQ-5D did not capture the full picture – for example, because 2 of the 5 domains measured mobility and self-care. These are not usually markedly affected by CRSwNP, leaving only 3 domains in which people can register any improvement or worsening of quality of life. One of the clinical experts said that in the MACRO trial, a randomised controlled trial of over 500 patients, the EQ-5D showed very little change in quality of life between the 3 arms of the trial. But the SNOT-22 showed a difference of 20 points. The committee noted the company's base-case utility values implied that, using the logic of the way utility values are calculated in health economic analysis, people were prepared to give up a third of their life for their symptoms to be controlled. Using the EAG's capped utility values, the figure was 15%. The committee accepted that the EQ-5D was not as sensitive as the SNOT-22 to all aspects of health-related quality of life in people with CRSwNP. But it concluded that it was not appropriate to map SNOT-22 data to the EQ-5D, if EQ-5D data is available from the trial. It took into account the guidance in NICE's health technology evaluations manual and from the Decision Support Unit about the most appropriate measure of health-related quality of life. It noted the uncertainties around using the Crump model to map health utilities. The committee concluded that it was more appropriate to use the EAG's approach, using capped utility values derived from EQ-5D data collected in the SINUS trials.

Utility gain from revision surgery

3.11 The company's base case applied a utility gain from revision surgery of 0.051. This was sourced from Soler et al. 2011. The EAG noted that the paper derived utility values using the Short-Form 6D (SF-6D), and used data which was relatively out of date, from 2004 to 2009. The EAG preferred to use a value of 0.08 from Remenschneider et al. 2015 in its base case because it derived values from the EQ-5D, in line with NICE's reference case, and used more recent data from 2011 to 2012. The company explained that it used Soler et al. because it preferred not to use the EQ-5D, as explained in section 3.10. The committee noted that it seemed inconsistent to prefer the SF-6D on the grounds that it was more sensitive, when it showed a smaller utility gain. It concluded it preferred to use the 0.08 value from Remenschneider, which was based on more recent data and derived in line with NICE's reference case.

Other differences between the company and EAG models

3.12 The company and EAG differed on other assumptions in the economic model:

- The company based general population mortality on the Office for National Statistics (ONS) life tables 2021 to 2023; the EAG used the ONS life tables 2017 to 2019 (in line with NICE DSU guidance), because these were from before the COVID pandemic.
- The company assumed increased mortality and costs for people with asthma, which is a benefit for the dupilumab arm; the EAG assumed no increased mortality or costs for people with asthma.
- The company assumed that after revision surgery, people on dupilumab whose condition did not respond had a higher utility than people on established clinical management whose condition did not respond; the EAG assumed the same post-revision surgery utility regardless of previous treatment.

- The company assumed that everyone would be able to self-administer dupilumab; the EAG assumed 5% would need help provided by a nurse home care visit.
- The company included the cost of 1 follow-up visit in the 2 years after revision surgery; the EAG included all surgery follow-up costs from Clarke et al. 2022.

Other factors

Equality

3.13 The committee noted issues raised during scoping around access to services varying because of geographic location. It was also noted during scoping that people with comorbidities may not be able to take corticosteroids or have surgery, so would be excluded from the licensed population. Some stakeholders suggested that recommending dupilumab was likely to reduce inequalities by providing access to a targeted biological treatment for people with severe CRSwNP, which has already been recommended by NICE for other chronic type 2 inflammatory conditions such as severe asthma and atopic dermatitis. Because its recommendations do not restrict access to treatment for some people over others, the committee agreed that these were not potential equality issues.

Uncaptured benefits

3.14 The committee considered whether there were any uncaptured benefits of dupilumab. It noted the company and clinical and patient experts' concerns about the EQ-5D's lack of sensitivity in measuring health-related quality of life in people with severe CRSwNP. It also noted the potential for dupilumab to reduce the need for oral corticosteroids. It concluded that some benefits of dupilumab may not have been captured in the QALY calculation.

Cost-effectiveness estimates

Acceptable ICER

3.15 NICE's manual on health technology evaluations 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. But it will also take into account other aspects including uncaptured health benefits. The committee recalled the potential uncaptured benefits related to the lack of sensitivity of the EQ-5D in severe CRSwNP, and the potential for dupilumab to reduce the need for oral corticosteroids (see section 3.14). But the committee also noted the high level of uncertainty, specifically around the:

- data used to estimate treatment effectiveness beyond 1 year in the model (see section 3.8)
- transition probabilities in the model for people moving from the post-op controlled to the uncontrolled health state (see section 3.9)
- utility values used in the model (see section 3.10 and 3.11).

So, the committee concluded that an acceptable ICER would be around the middle of the range NICE considers a cost-effective use of NHS resources (£20,000 to £30,000 per QALY gained).

The committee's preferred assumptions

3.16 The committee's preferred model assumptions were:

- treatment effect in the first year based on NPS and SNOT-22 (see section 3.7)
- treatment effect beyond 1 year based on AROMA data formally matched to the SINUS trials that accounts for differences in how responders are classified (see section 3.8)

- utility values based on EQ-5D data from the SINUS trials capped at general population age and sex-matched utility values, with a multiplier applied to subsequent health states to retain the proportional differences between health states (see section 3.10)
- utility gain from revision surgery based on Remenschneider et al. 2015 (see section 3.11)
- general population mortality based on the ONS life tables from 2017 to 2019 (see section 12)
- increased mortality and costs for people with asthma (see section 12)
- the same post-revision surgery utility regardless of previous treatment (see section 12)
- everyone able to self-administer dupilumab (see section 12)
- all surgery follow-up costs from Clarke et al. 2022 included (see section 12).

Conclusion

3.17 The company's base-case ICER was £23,793. The EAG's base-case ICER was £59,379. The committee could not determine its preferred cost-effectiveness estimate for dupilumab because of the uncertainties in the economic model. But using the committee's preferred assumption of EQ-5D values from the SINUS trials increased the ICER to over £50,000. The committee concluded it was likely that the ICER for dupilumab was above the range that NICE considers a cost-effective use of NHS resources. So, dupilumab is not recommended.

4 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 B.

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

Baljit Singh
Chair, technology appraisal committee B

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, a project manager and an associate director.

Emilene Coventry
Technical lead

Nigel Gumbleton
Technical adviser

Vonda Murray, Thomas Feist
Project managers

Richard Diaz
Associate director

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