# Secukinumab for treating moderate to severe hidradenitis suppurativa

Slides for public, redacted

**Technology appraisal committee B [02 August 2023]**

**Chair:** Baljit Singh

**External assessment group:** Aberdeen Health Technology Assessment Group

**Technical team:** Anna Willis, Lizzie Walker, Richard Diaz

**Company:** Novartis

# Secukinumab (Cosentyx, Novartis)

| | |
|---|---|
| **Marketing authorisation** | • Secukinumab has an MHRA marketing authorisation for the treatment of "active moderate to severe hidradenitis suppurativa (HS) in adults with an inadequate response to conventional systemic hidradenitis suppurativa therapy". |
| **Mechanism of action** | • Fully human IgG1/κ monoclonal antibody, which targets IL-17A, inhibiting its interaction with the IL-17 receptor<br>• This inhibits the release of proinflammatory cytokines, chemokines and mediators of tissue damage |
| **Administration** | • Secukinumab 300 mg is self-administered by subcutaneous injection, with initial weekly dosing from week 0 to 4, followed by maintenance dosing every 4 weeks with the possibility to up-titrate to every 2 weeks |
| **Price** | • List price per 300 mg pre-filled pen: £1,218.78<br>• There is a commercial arrangement (simple PAS) already in place for secukinumab across all indications |



**Abbreviations:** CHMP, Committee for Medicinal Products for Human Use; MHRA, Medicines and Healthcare Products Regulatory Agency; PAS, patient access scheme.

# Draft guidance recommendation

Secukinumab is **not recommended**

- Evidence from 2 clinical trials shows that secukinumab generally improves symptoms of moderate to severe HS more than placebo
- The trials did not use the same treatments alongside secukinumab or placebo that are usually used for HS in NHS clinical practice. So, the extent of the benefit of secukinumab in NHS clinical practice is unclear
- Both trials are short so the longer-term effect of secukinumab is also unclear
- The cost-effectiveness estimates are all above what NICE considers an acceptable use of NHS resources



**Abbreviations:** HS, hidradenitis suppurativa.

# Key issues from ACM1

| Key issue and committee conclusions at ACM1 | Response from company | Resolved? | ICER impact |
|---|---|---|---|
| **BSC transition probabilities:**<br>• Requested scenarios where the proportion of responders decreases over time<br>• Further validation of model output is needed | Provided additional justification for base case. Scenarios explored | Company and EAG disagree – to discuss at ACM2 | Large |
| **SEC transition probabilities:**<br>• Model needs to reflect the responses seen in the SUNNY trials at week 16 (compared with BSC) and at week 52 | Updated model to better align response rates with trial data at week 16 | Company and EAG aligned post ACM1 – to discuss at ACM2 | Small |
| **Up-titration:**<br>• Inappropriate to include up-titration in the model base | Base case unchanged. Provided results with and without up-titration applied | Company and EAG disagree – to discuss at ACM2 | Large |
| **Stopping secukinumab**<br>• Reasonable to apply stopping rule for people who had no response to secukinumab at week 16<br>• Requested scenario where people who lose response in the maintenance phase of the model stop secukinumab and instead have BSC | Included a stopping rule for secukinumab in line with the approach used for adalimumab in TA392 | Company and EAG aligned post ACM1 – to discuss at ACM2 | Large |

**Abbreviations:** ACM, appraisal committee meeting; BSC, best supportive care; ICER, incremental cost-effectiveness ratio.

# Key issues and other issues from ACM1

| Key issue and committee conclusions at ACM1 | Response from company | Resolved? | ICER impact |
|---|---|---|---|
| **Treatment specific health-state utilities**<br>• Use treatment-specific utility values for the no response health state up to week 16 only, and treatment-pooled utility values thereafter | Maintained that treatment-specific utilities should apply after week 16, provided supporting data | Company and EAG aligned post ACM1 – to discuss at ACM2 | Large |
| **Other issue and committee conclusions at ACM1** | | | |
| **Surgery costs**<br>• Conservatively preferred to use surgery costs from the EAG base case | Provided additional justification for base case, scenarios explored | Company and EAG disagree – to discuss at ACM2 | Small |
| **Outpatient visit frequencies**<br>• Conservatively preferred to use outpatient visit costs from the EAG base case | Provided additional justification for base case | Company and EAG aligned post ACM1 – to discuss at ACM2 | Small |
| **Alignment of BSC treatment costs with treatments used in SUNNY trials**<br>• Costs of BSC in the model should be aligned with the placebo arm of the SUNNY trials | Updated model base case to align with committee preference | Resolved at ACM1 | |

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**Abbreviations:** ACM, appraisal committee meeting; BSC, best supportive care; EAG, evidence assessment group; ICER, incremental cost-effectiveness ratio.

# Consultation comments

- **Web comments from 2 NHS consultant dermatologists**
- **Company:** Novartis

# Web comments from 2 NHS consultant dermatologists

- **An alternative to adalimumab is desperately needed:**
  - People who do not respond to adalimumab are very severely affected by their disease
  - People who cannot have adalimumab often have significant comorbidities

- **Secukinumab provides a safe and effective alternative**

- **Committee has underestimated the morbidity and costs of BSC:**
  - Patients with moderate to severe disease are often referred for, often quite radical, surgery. This is likely to be sequential surgery as not possible to complete all the necessary surgery on one occasion
  - The costs of monitoring and supervision of patients with HS on BSC are very considerable

- **Cost of secukinumab:**
  - "I do think the costs [for secukinumab] are rather high."

- **SUNNY trials are generalisable to NHS clinical practice:**
  - ~23% of people had prior biologics exposure, which reflects clinical practice
  - Considers it incorrect (or at least highly speculative) that people having BSC treatments in the SUNNY trials would have worse outcomes than people having BSC in clinical practice:
    - People in the trials who needed concomitant medication were given it – if they did not respond, they would leave the trial



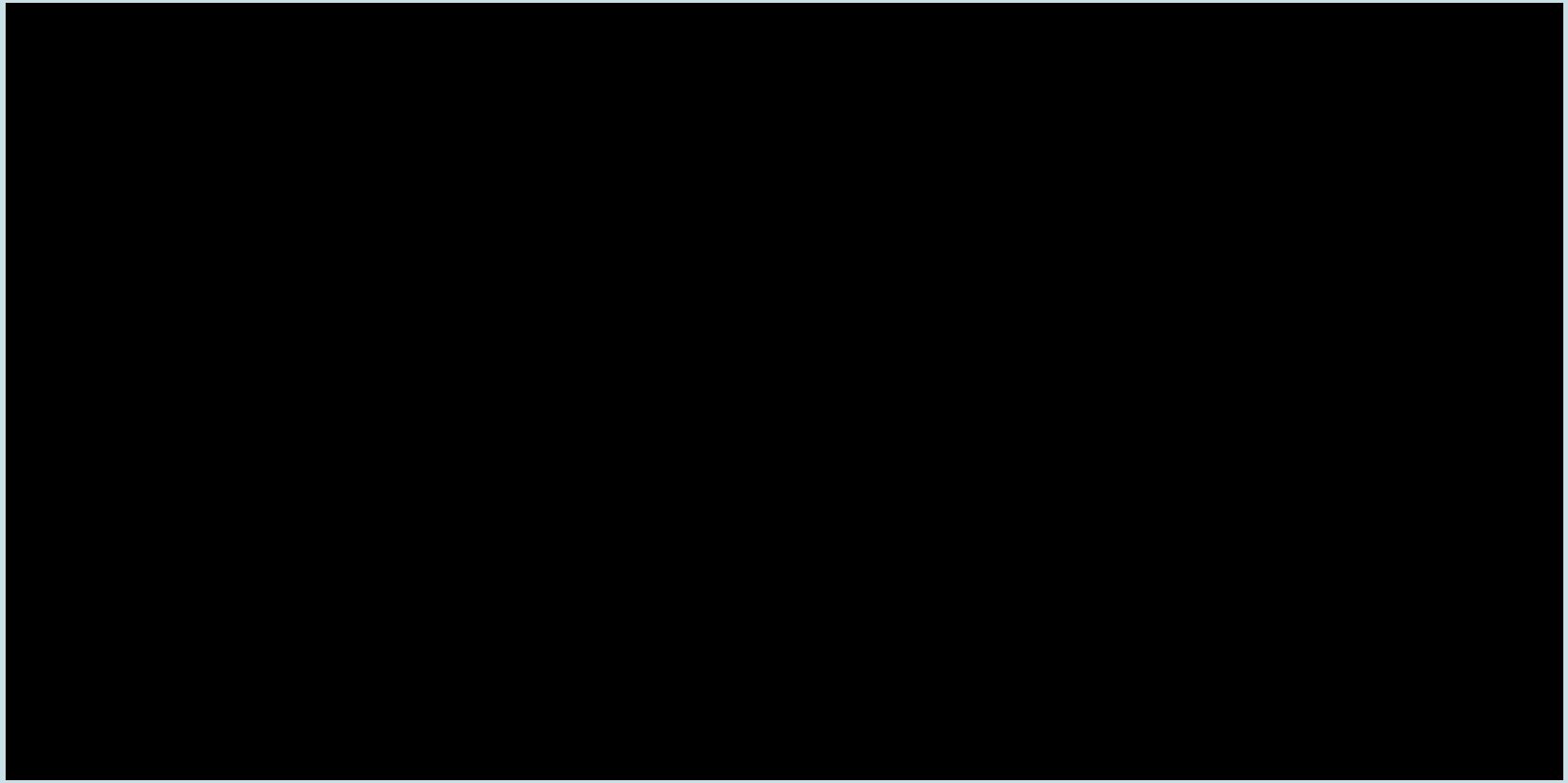
**Abbreviations:** BSC, best supportive care; HS, hidradenitis suppurativa.

# Key issue 1: Transition probabilities – BSC (1/5)

**Committee conclusions in ACM1 (draft guidance section 3.12):**

- Unable to choose between:
  - Week 0-16 placebo data from SUNNY (EAG preference)
  - Week 12-36 placebo data from PIONEER II (company preference)
- Plateau in response rates observed in both base cases does not reflect clinical practice
- Requested scenarios where proportion of responders decreases over time
- Also requested further validation of model output with clinical experts and additional data sources

**Figure 1: Proportion of responders over time with different model assumptions in model presented at ACM1 (BSC = black lines on graph)**



**Response definition:**
Response is defined as the sum of health state occupancy proportions in the HiSCR50 to 74 and HiSCR≥75 states

# Key issue 1: Transition probabilities – BSC (1/5)

**Company response:**

- Maintains that current base case using PIONEER II data is most suitable
- **Validation with clinical experts**
  - Experts agreed it was reasonable to use PIONEER II as proxy for population in SUNNY trials
  - All experts considered that the EAG approach lacked face validity and underestimated the unmet need. One clinical expert noted that if such a response was observed in practice, there would be no need for therapies beyond conventional treatments

- **Comparison with observed data from PIONEER II and model predictions in TA392**
  - Company approach is more aligned with observed response rates from PIONEER II (see **Figure 1)**
  - Company approach is more aligned with TA392 (pre-ACD) model predictions considering proportion of responders over time and overall discounted QALYs
    - When utility assumptions are aligned with TA392, EAG approach generates ~2 discounted QALYs more than in TA392. Company approach generates ~0.12 QALYs fewer

**Figure 1: Responder (HiSCR≥50) distribution across time horizon; EAG, PIONEER II and company approaches**

# Key issue 1: Transition probabilities – BSC (3/5)

**EAG response:**

- Maintains EAG base case from ACM1 using 16-week data from placebo arms of SUNNY
- Company's approach assumes an increasing treatment effect over time, with no evidence to support this (**Figure 1**)
  - Company's relative risk (RR) of response for secukinumab Q4W vs. BSC: [redacted] at 1 and 5 years respectively, despite only [redacted] of the cohort being on secukinumab treatment
  - By contrast, in the EAG preferred base case, the implied RRs are [redacted] at 1 and 5 years respectively
  - EAG's preferred extrapolations align more closely with the clinical effectiveness outcomes from the SUNNY trials at week 16 (**Table 1**)

**Figure 1: Company vs EAG implied RR of response (SEC vs BSC)**

**Table 1: SUNNY trial results, primary outcome (proportion of people with HiSCR50 at week 16)**

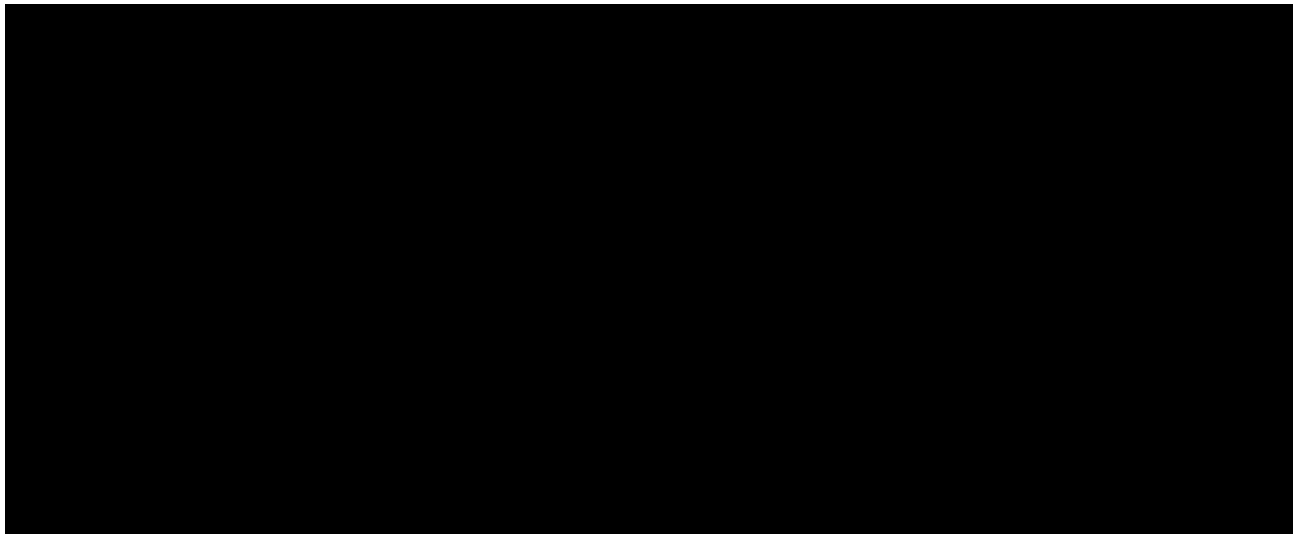
| Study | OR vs PBO (95% CI) | |
|---|---|---|
| | SEC Q2W | SEC Q4W |
| SUNSHINE | 1.75 (1.12, 2.73) | 1.48 (0.95, 2.32) |
| SUNRISE | 1.64 (1.05, 2.55) | 1.90 (1.22, 2.96) |

**Abbreviations:** ACM, appraisal committee meeting; BSC, best supportive care; HiSCR50, hidradenitis suppurativa clinical response score of 50; HS, hidradenitis suppurativa; QxW, every x weeks; OR, odds ratio; PBO, placebo; RR, relative risk; SEC, secukinumab.

# Key issue 1: Transition probabilities – BSC (4/5)

**Figure 1: Response curves in company base case (without up-titration)**

**Figure 2: Response curves in EAG base case**



Should the transition probabilities for BSC be taken from:

- week 12-36 data of PIONEER II (company base case)
- week 0-16 of the SUNNY trials (EAG base case)?

**Abbreviations:**; BSC, best supportive care; HiSCR, hidradenitis suppurativa clinical response score; HS, hidradenitis suppurativa; SEC, secukinumab.

# Key issue 1: Transition probabilities – BSC (5/5)

## Committee considered plateau in BSC response rates implausible

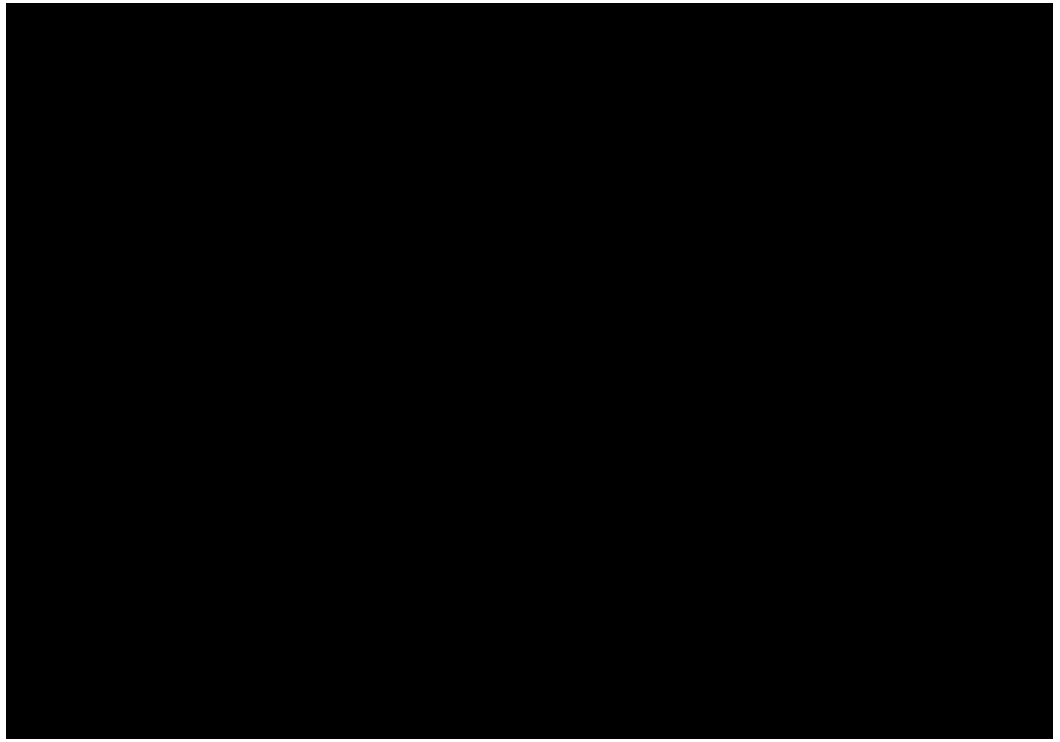
**Company response:**

- Plateau was observed in company submission for TA392
- Plateau does not mean that people cannot regain or lose response over time, but this is an average proportion of responders over time
- Conducted 2 scenarios:
  1. Using risk of loss of response estimates from PIONEER II (**see Figure 1**)
  2. Assuming an arbitrary 10% increase in loss of response after week 52

**EAG response:**

- Placebo arm of trial may underestimate response as it does not capture the benefit of active drug treatment or surgery. If these treatments are considered, a plateauing curve may be more plausible
- Concerned that arbitrarily reducing proportion responding to BSC over time will increase uncertainty

**Figure 1: Health state occupancy over time for the BSC arm using the risk of loss of response from PIONEER II to inform transitions in Maintenance phase (Weeks 16–52, Week 52+)**



Is it reasonable to assume plateau in response rates in BSC arm over time?

# Key issue 2: Transition probabilities – secukinumab

**Committee conclusions in ACM1 (draft guidance section 3.13):**

- In both the company and the EAG base cases, the response rates predicted in the secukinumab arm of the model at week 16 overestimated the response rates seen in the SUNNY trials
- The initial mismatch may have also impacted on the long-term response rates.
- Model needs to reflect the responses in the SUNNY trials at week 16 (compared with BSC) and at week 52

**Company response:**

- Initial mismatch is because all patients start in the HiSCR<25 health state, which impacts the calculation of average transition probabilities during the induction phase
- Average transition probabilities were used in the model as this results in a smoothing effect, which reduces the impact of random fluctuations, providing more reliable estimates over a longer period
- Base case has been revised to include **per-cycle** transition probabilities for the induction phase only, whilst maintaining **average** transition probabilities beyond week 16
- Provided validation of model-predicted response rates against observed SUNNY data at week 16. Not possible to validate response at week 52 as the model structure deviates from SUNNY trials (in the trials, patients did not discontinue secukinumab at week 16 based on response)
- Scenario provided using **average** transition probabilities

**EAG response:** Satisfied with company's revised approach

Is the company's revised approach reasonable?

**Abbreviations:** ACM, appraisal committee meeting; BSC, best supportive care; EAG, evidence assessment group; HiSCR50, hidradenitis suppurativa clinical response score of 50.

# Key issue 3: Up-titration (1/2)

**Committee conclusions in ACM1 (draft guidance section 3.10):**

- The SUNNY trials do not show a clear dose-response relationship for secukinumab
- It may be appropriate to use up-titration in clinical practice, however more evidence needed to show a clinical benefit of up-titration in people who do not have a response to the every-4-weeks dose
- It is inappropriate to include up-titration in the model base case, given that up-titration was not assessed in the SUNNY trials

**Company response:**

- Still prefers to include up-titration in the base case, however all results are provided both with and without up-titration for transparency and completeness
- Up titration should be included because:
  - It is permitted in the licence for secukinumab and is likely to reflect clinical practice
  - Clinical experts consulted felt that the flexibility to up titrate the dose is important given the absence of other treatment options. In addition, some patients may benefit from up-titration as per clinical experience in plaque psoriasis
  - Post hoc analysis shows that the subgroup with more severe disease benefited from more frequent dosing



**Abbreviations:** ACM, appraisal committee meeting.

# Key issue 3: Up-titration (2/2)

**EAG response:**

- Acknowledges unmet need in the group with HS that does not respond to the Q4W dose
- However, company has not provided any evidence to support effectiveness of Q2W dose for people with HS that does not respond to the Q4W dose
- Agrees with committee's previous conclusion to not include up-titration in cost-effectiveness base case
- However, the impact of up-titration on the ICER is likely to be small to moderate [redacted]

Should up-titration of secukinumab be recommended in clinical practice?
Should up-titration of secukinumab be included in the model base case?



**Abbreviations:** HS, hidradenitis suppurativa; QxW, every x weeks; ICER, incremental cost-effectiveness ratio.

# Key issue 4: Stopping secukinumab

**Committee conclusions in ACM1 (draft guidance section 3.11):**

- It is reasonable to apply a stopping rule for people who had no response to secukinumab, similar to the stopping rule in place for adalimumab in HS
- Further information needed to determine the most appropriate stopping rule
- Would like to see a scenario where people who lose response in the maintenance phase of the model stop secukinumab and instead have BSC

**Company response:**

- Updated base case to apply 2 stopping rules for:
  - People in the non-response health state at the end of induction phase (week 16)
  - People who lose response in the maintenance phase and maintain non-response for 12 weeks (this was applied in the model using tunnel states to track when patients entered the non-response state)
- The stopping rule is mostly aligned with that used for adalimumab in TA392 (initial stopping rule at 16 weeks rather than 12 weeks to align with SUNNY trials)
- Approach has been clinically validated
- Scenario analysis excluding stopping rules is also provided

**EAG response:**

- Satisfied that stopping rules are implemented in the model as described

Are the stopping rules for secukinumab appropriate?



**Abbreviations:** ACM, appraisal committee meeting; BSC, best supportive care; HS, hidradenitis suppurativa.

# Key issue 5: Treatment specific health-state utilities

**Committee conclusions in ACM1 (draft guidance section 3.14):**

- It is appropriate to use treatment-specific utility values for the non-response health state up to week 16
- From week 16 onwards (in the maintenance phase), treatment-pooled utility values are preferred

**Company response:**

- Maintains original base case – treatment-specific utilities should be used in the non-response state both up to week 16 **and** beyond week 16
- People in the SUNNY trials did not remain on placebo for longer than 16 weeks due to ethical reasons
- However, utility data for the placebo arm of PIONEER II, shows that utility decreased from 0.557 to 0.520 between week 12 and week 36 suggesting that quality of life on placebo deteriorates over time
- This is aligned with fact that BSC is a supportive treatment that is not expected to be efficacious
- Conversely, clinical benefit and utility for secukinumab based on SUNNY data are sustained to week 52, including for non-responders
- Scenario provided which uses treatment-pooled utility for non-responders in the maintenance phase

**EAG response:**

- Agrees with company that the use of treatment-specific utility values in the non-response state is justified
- Applying treatment specific utilities up to week 16 only means that BSC patients increase their utility arbitrarily at week 16
- Given a stopping rule is now applied, the risk of consistent non-responders getting a utility gain in the non-response state is minimised as these patients now transition to BSC

Should treatment-specific utility values be applied for non-responders in the maintenance phase?

# Other issues: Surgery costs (1/2)

**Committee conclusions in ACM1 (draft guidance section 3.16):**

- Conservatively preferred using surgery costs from the EAG base case.

**Company response:**

- Maintains original cost based on committee preference in TA392 (cost per surgery of £2,402)
- EAG approach uses a distribution of surgeries that is not specific to HS, resulting in a cost of £1,217, which is lower than the cost used in TA392 (£1,526) and inappropriate considering inflation
- Feedback from 3 blinded clinical experts suggests:
  - Limitations with both approaches but company approach more appropriate
  - Most HS surgeries would fall under the day case intermediate category, day case minor category and non-elective short stay procedures
  - Day case intermediate and minor procedures could be evenly split to incorporate both approaches
  - Surgery costs may be underestimated [compared to TA392] if patients could not have adalimumab
- Provided scenario assuming equal split between day case minor and intermediate procedures (see **Table 1**, next slide)

**Web comments:**

- Patients with moderate to severe disease are often referred for, often quite radical, surgery
- This is likely to be sequential surgery as surgeons are not able to complete all the necessary surgery on one occasion



**Abbreviations:** ACM, appraisal committee meeting; EAG, evidence assessment group; HS, hidradenitis suppurativa.

# Other issues: Surgery costs (2/2)

**EAG response:**

- Maintains preference to apply weighed average surgery cost of £1,217
- This accounts for a mix of minor, intermediate, and major procedures and reflects discussion at the first committee meeting
- Company's base case is also inconsistent with advice of EAG and company clinical experts
- Acknowledges the company's arguments around inflation but does not consider them relevant as the underlying assumptions about surgery type and setting are different to those used in TA392

**Table 1: Company and EAG approach to costing surgery**

| Setting | Type of skin procedure | Company post-TE | Company scenario | EAG |
|---|---|---|---|---|
| Elective inpatient | Multiple major | 0% | 0% | 0.13% |
| | Major | 6.68% | 6.68% | 0.52% |
| | Intermediate | 13.16% | 13.16% | 1.85% |
| | Minor | 0% | 0% | 0.87% |
| Day case | Multiple major | 0% | 0% | 1.02% |
| | Major | 0% | 0% | 3.68% |
| | Intermediate | 67.00% | 33.5% | 22.25% |
| | Minor | 0% | 33.5% | 69.68% |
| Non-elective short stay | Intermediate | 13.16% | 13.16% | 0% |
| **Weighted average cost** | | **£2,402** | **£2,150** | **£1,217** |

What is the committee's preferred approach to incorporating surgery costs?

- Company base case – committee preference in TA392
- Company scenario – committee preference in TA392 assuming 50:50 split between day case intermediate and minor procedures
- EAG base case – based on NHS reference costs and clinical expert opinion



**Abbreviations:** EAG, evidence assessment group.

# Other issues: Outpatient visit frequencies

**Committee conclusions in ACM1 (draft guidance section 3.18):**

- Given the uncertainty, the committee conservatively preferred the use of outpatient visit costs from the EAG base case, which aimed to reduce the possibility of double counting.

**Company response:**

- Provided reassurance that outpatient resource use was not double counted, including full details of the exact questions posed to clinical experts consulted for TA392

**EAG response:**

- Satisfied that the risk of double counting is low
- The company's additional clarification is sufficient to allow the EAG to accept the company's preferred outpatient resource use estimates.

Do the committee agree with the company and EAG preferred assumptions?

**Abbreviations:** EAG, evidence assessment group.

# Summary of company and EAG base case assumptions

| Assumption | Company base case | EAG base case |
|---|---|---|
| **Transition probabilities - BSC** | **Week 0-16:** Week 0-16 placebo data from SUNNY<br>**Week 16+:** Week 12-36 placebo data from PIONEER II | **Week 0-16:** Week 0-16 placebo data from SUNNY<br>**Week 16+:** Week 0-16 placebo data from SUNNY |
| **Transition probabilities - secukinumab** | Per cycle transition probabilities up to week 16, average transition probabilities thereafter | |
| **Up-titration modelled?** | Yes | No |
| **Stopping rule** | Yes | |
| **Health-state utility values** | Treatment specific up to and beyond week 16 | |
| **BSC costs** | Placebo arms of SUNNY trials | |
| **Surgery cost** | As per TA392 – no minor procedures (£2,402) | Weighted across HRG codes for all grades of surgery (£1,217) |
| **Outpatient visit frequencies** | As per TA392 | |

**Abbreviations:** BSC, best supportive care; EAG, evidence assessment group; HRG, healthcare resource group.

# Key issues and scenarios for committee to consider

| Key issue | Question | Options |
|---|---|---|
| **Transition probabilities – BSC** | What is the most appropriate source for transition probabilities for BSC? | • BSC arm in PIONEER II (company base case)<br>• BSC arm in SUNNY (EAG trials)<br>• BSC arm in PIONEER II with adjustment to reduce proportion of responders over time (company scenario analyses) |
| **Transition probabilities – SEC** | Is the company's revised approach reasonable? | • Yes – per cycle transition probabilities up to week 16 average transition probabilities thereafter (company and EAG base case)<br>• No |
| **Up-titration** | Should up-titration of be recommended in clinical practice? Should it be modelled? | • Yes – non-responders at week 16 may be up-titrated from Q4W to Q2W dosing (company base case)<br>• No (EAG base case) |
| **Stopping rule** | Are the stopping rules appropriate? | • Yes – applied for non-responders at week 16 and non-responders in the maintenance phase for 12 weeks (company and EAG base case)<br>• No |
| **Health-state utility values** | Treatment-specific utilities for non-responders in maintenance phase? | • Yes (company and EAG base case)<br>• No |
| **Surgery costs** | Preferred approach to incorporating surgery costs? | • Company base case<br>• Company scenario analysis<br>• EAG base case |

# Cost-effectiveness results

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# Company base case results

Company deterministic base case results

| Technology | Total costs (£) | Total QALYs | Incremental costs (£) | Incremental QALYs | ICER (£/QALY) |
|---|---|---|---|---|---|
| BSC | [redacted] | [redacted] | | | |
| Secukinumab | [redacted] | [redacted] | [redacted] | [redacted] | £54,554 |

Company probabilistic base case results

| Technology | Total costs (£) | Total QALYs | Incremental costs (£) | Incremental QALYs | ICER (£/QALY) |
|---|---|---|---|---|---|
| BSC | - | - | | | |
| Secukinumab | - | - | [redacted] | [redacted] | £54,282* |

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**Notes:** *ICER reported in EAG critique. **Abbreviations:** BSC, best supportive care; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life year.

# EAG base case results

EAG deterministic base case results

| Technology | Total costs (£) | Total QALYs | Incremental costs (£) | Incremental QALYs | ICER (£/QALY) |
|---|---|---|---|---|---|
| BSC | [redacted] | [redacted] | | | |
| Secukinumab | [redacted] | [redacted] | [redacted] | [redacted] | £105,353 |

EAG probabilistic base case results

| Technology | Total costs (£) | Total QALYs | Incremental costs (£) | Incremental QALYs | ICER (£/QALY) |
|---|---|---|---|---|---|
| BSC | [redacted] | [redacted] | | | |
| Secukinumab | [redacted] | [redacted] | [redacted] | [redacted] | £105,667 |



**Abbreviations:** BSC, best supportive care; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life year.

# Company base case at ACM1 and ACM2

## Changes to the company base case between ACM1 and ACM2

| No. | Change (applied individually) | Incremental costs (£) versus BSC | Incremental QALYs versus BSC | ICER (£/QALY) versus BSC |
|---|---|---|---|---|
| **0** | **Company deterministic base case at ACM1** | [redacted] | [redacted] | £42,415 |
| 1 | Alignment of BSC (drug acquisition) costs with placebo arm of SUNNY trials **(key issue #6)** | [redacted] | [redacted] | £45,091 |
| 2 | Inclusion of stopping rules at week 16 and for sustained (3 cycles) non-response thereafter **(key issue #4)** | [redacted] | [redacted] | £51,945 |
| 3 | Use of 4-weekly cycle specific transitions for the induction phase of the model **(key issue #2)** | [redacted] | [redacted] | £42,447 |
| **4a** | **Company revised deterministic base case analysis at ACM2 (1+2+3)** | [redacted] | [redacted] | **£54,554** |
| **4b** | **Company revised probabilistic base case analysis at ACM2 (1+2+3)** | [redacted] | [redacted] | **£54,282*** |

NICE

**Notes:** *ICER reported in EAG critique. **Abbreviations:** BSC, best supportive care; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life year.

# Company and EAG base cases

## Individual impact of EAG preferences on company ICER

| No. | EAG preference (applied individually to company base case) | Incremental costs (£) versus BSC | Incremental QALYs versus BSC | ICER (£/QALY) versus BSC |
|---|---|---|---|---|
| **0** | **Company deterministic base case analysis ACM2** | [redacted] | [redacted] | **£54,554** |
| 1 | Removal of up-titration **(key issue #3)** | [redacted] | [redacted] | £61,508 |
| 2 | BSC transitions based on placebo arm of SUNNY trials **(key issue #1)** | [redacted] | [redacted] | £97,210 |
| 3 | Use of EAG preferred surgery costs **(other issue)** | [redacted] | [redacted] | £57,876 |
| 4a | **EAG preferred deterministic base case analysis at ACM2 (1+2+3)** | [redacted] | [redacted] | £105,353 |
| 4b | **EAG preferred probabilistic base case analysis at ACM2 (1+2+3)** | [redacted] | [redacted] | £105,667 |

**Abbreviations:** BSC, best supportive care; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life year.

# Company probabilistic scenario analysis (using company base case including up-titration)

Company scenario analyses (probabilistic)

| No. | Scenario (applied to company base case including up-titration) | Incremental costs (£) versus BSC | Incremental QALYs versus BSC | ICER (£/QALY) versus BSC |
|---|---|---|---|---|
| **1** | **Company base case** | [redacted] | [redacted] | £54,070 |
| **2** | Stopping rule removed | [redacted] | [redacted] | £45,078 |
| **3** | Average (4-weekly) transition probabilities for secukinumab up to Week 16 | [redacted] | [redacted] | £54,357 |
| **4** | Risk of loss of response estimates from PIONEER II | [redacted] | [redacted] | £52,618 |
| **5** | Arbitrary 10% increase in BSC loss of response probability after Week 52 | [redacted] | [redacted] | £53,512 |
| **6** | Treatment-pooled utility values for all health states during the maintenance phase | [redacted] | [redacted] | £77,311 |
| **7** | Scenario assuming equal split between day case minor and intermediate procedures | [redacted] | [redacted] | £54,962 |

# Company probabilistic scenario analysis (excluding up-titration)

Company scenario analyses (probabilistic)

| No. | Scenario (applied to company base case with up-titration excluded) | Incremental costs (£) versus BSC | Incremental QALYs versus BSC | ICER (£/QALY) versus BSC |
|---|---|---|---|---|
| **1** | **Company base case with up titration excluded** | [redacted] | [redacted] | £60,898 |
| **2** | Stopping rule removed | [redacted] | [redacted] | £46,772 |
| **3** | Average (4-weekly) transition probabilities for secukinumab up to Week 16 | [redacted] | [redacted] | £58,546 |
| **4** | Risk of loss of response estimates from PIONEER II | [redacted] | [redacted] | £64,351 |
| **5** | Arbitrary 10% increase in BSC loss of response probability after Week 52 | [redacted] | [redacted] | £60,214 |
| **6** | Treatment-pooled utility values for all health states during the maintenance phase | [redacted] | [redacted] | £81,316 |
| **7** | Scenario assuming equal split between day case minor and intermediate procedures | [redacted] | [redacted] | £61,744 |

# EAG deterministic scenario analysis

EAG scenario analyses (deterministic)

| No. | Scenario (applied to EAG base case) | Incremental costs (£) versus BSC | Incremental QALYs versus BSC | ICER (£/QALY) versus BSC |
|---|---|---|---|---|
| 0 | **EAG preferred deterministic base case analysis post ACD** | [redacted] | [redacted] | £105,353 |
| 1 | Use of treatment specific utility values for the non-responder state for induction phase only **(key issue #5)** | [redacted] | [redacted] | £140,605 |
| 2A | Deterministic base case analysis aligned with ACD preferences (EAG BSC transitions) | [redacted] | [redacted] | £141,616 |
| 2B | Probabilistic base case analysis aligned with ACD preferences (EAG BSC transitions) | [redacted] | [redacted] | £141,386 |
| 3A | Deterministic base case analysis aligned with ACD preferences (Company BSC transitions) | [redacted] | [redacted] | £87,515 |
| 3C | Probabilistic base case analysis aligned with ACD preferences (Company BSC transitions) | [redacted] | [redacted] | £87,098 |

**Abbreviations:** BSC, best supportive care; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life year.

# Equality considerations

- The incidence of HS is higher in people of African-Caribbean family background as compared with people of European family background
- Peak prevalence is in females of childbearing age



**Abbreviations:** HS, hidradenitis suppurativa