An Addendum to this Public Summary Document has been included at the end of this document.

6.02 GUSELKUMAB, Injection 100 mg in 1 mL single use pre-filled pen, Tremfya®, Janssen-Cilag Pty Ltd.

1 Purpose of submission

1.1 The Category 2 submission requested a General Schedule, Authority Required listing for guselkumab 100 mg single use pre-filled pen (PFP) for the treatment of adults with severe chronic plaque psoriasis (CPP).

1.2 Listing was requested on the basis of a cost-minimisation approach versus guselkumab 100 mg pre-filled syringe (PFS).

1.3 The submission also requested that the PBAC reconsider the previously determined therapeutic relativities in CPP treatment, of guselkumab versus adalimumab, etanercept, ustekinumab and infliximab and claimed that guselkumab is superior in efficacy to adalimumab, etanercept, ustekinumab and infliximab when used in the treatment of CPP. The key components of the submission as presented are summarised in Table 1.

Table 1: Key components of the clinical issue addressed by the submission (as stated in the submission)

Component	Description
Population	Adult patients with severe CPP
Intervention	GUS 100 mg PFP (1x 100 mg injection) subcutaneously at Week 0, 4, then every 8 weeks.
Comparator	Currently listed form: GUS 100 mg PFS (1x 100 mg injection) subcutaneously at Week 0, 4, then every 8 weeks Other listed biologics in which PBAC consideration of their therapeutic relativities versus GUS is requested in this submission, specifically: •TNFa inhibitors • ADA 80 mg subcutaneously at Week 0, 40 mg Week 1, then every 2 weeks • ETN 50 mg subcutaneously once weekly, or 25 mg twice weekly • IFX 5mg/kg intravenously at week 0, 2, 6 then every 8 weeks •IL-12/23 inhibitors • UST 45 mg or 90 mg (>100 kg) subcutaneously at Week 0, 4, then every 12 weeks
Outcomes	Efficacy (i.e. PASI 75, PASI 90) and safety
Clinical claim	In patients with severe CPP: • GUS 100 mg PFP (1x 100 mg injection) is bioequivalent and non-inferior to GUS 100 mg PFS (1 x 100mg injection) in efficacy and safety, which has previously been acknowledged by PBAC at their July 2020 and March 2021 meetings (Guselkumab PFP PSD July 2020, Attachment 1.6, Guselkumab PFP PSD March 2021, Attachment 1.7) • GUS is superior in terms of efficacy and non-inferior in terms of safety to ADA, ETN and UST • GUS is superior to IFX in terms of efficacy and potentially superior in terms of safety

Source: Table 1.1, p 16 of the submission. CPP, chronic plaque psoriasis, GUS, guselkumab, IL-23, interleukin-23, PFP, pre-filled pen, PFS, pre-filled syringe, PBAC, Pharmaceutical Benefits Advisory Committee, TNFa, Tumor Necrosis Factor Alpha, ADA, adalimumab, ETN, etanercept, IFX, infliximab, UST, Ustekinumab, PASI, psoriasis area and severity index.

2 Background

Registration status

2.1 Guselkumab PFP was TGA registered on 13 May 2020 for the treatment of adult patients (18 years or older) with moderate to severe plaque psoriasis who are candidates for systemic therapy or phototherapy.

Previous PBAC consideration

2.2 Previous considerations of guselkumab PFS and PFP preparations for CPP are summarised in For more *detail on PBAC's view, see section 7 PBAC outcome.*

2.3 Table 2. PBAC has twice recommended listing of guselkumab PFP, and has considered and rejected the request that guselkumab PFP be cost-minimised to the PFS rather than to the lowest-cost listed biologic disease modifying anti-rheumatic drug (bDMARD).

2.4 Guselkumab PFP was not listed because the lowest cost listed bDMARD at the time was infliximab, whose price was lower than the price of guselkumab PFS, and this lower price was not accepted by the sponsor.

2.5 A claim that a new presentation should be cost-minimised only to the existing presentation was considered more recently by PBAC in relation to risankizumab 150 mg, and rejected: "PBAC considered that whilst it is reasonable for presentations

of risankizumab 1 x 150 mg to be listed on a cost minimisation basis with the 2 x 75 mg forms, the listing also should not be more costly than that of bimekizumab, guselkumab, ixekizumab, secukinumab or tildrakizumab" (Paragraph 7.13, Risankizumab Public Summary Document [PSD], November 2023 PBAC Meeting).

2.6 All of the clinical claims made by this submission have previously been considered by the PBAC and the requested basis for determining the cost effectiveness of the guselkumab PFP is inconsistent with advice provided by the PBAC.

2.7 The claim that guselkumab PFP is non-inferior to guselkumab PFS was accepted (Paragraph 6.2, Guselkumab PSD, July 2020 PBAC Meeting).

2.8 The claim that guselkumab is superior in efficacy and non-inferior in safety to adalimumab was accepted (Paragraph 6.28, 6.35, Guselkumab PSD, March 2018 PBAC Meeting).

2.9 The claim that guselkumab is superior in efficacy to etanercept has not been considered by PBAC, but a similar claim for risankizumab over etanercept was considered by PBAC at a previous meeting (Paragraph 6.28, Risankizumab PSD, November 2023 PBAC Meeting). In addition, Ustekinumab was listed in 2009 on the basis of superiority to etanercept (Paragraph 9, Ustekinumab PSD, November 2009 PBAC Meeting).

2.10 In relation to infliximab, the PBAC advised in March 2023 that "the totality of clinical evidence did not support a claim of superior effectiveness or safety for bimekizumab versus infliximab" (Paragraph 6.43, Bimekizumab PSD, March 2023 PBAC Meeting). In its November 2023 consideration of Risankizumab, the PBAC reversed this decision (Paragraph 7.5, 7.6, Risankizumab PSD, November 2023 PBAC Meeting). This was based on the consideration that infliximab is associated with a risk of serious infections (tuberculosis, invasive fungal infections and Listeria and Legionella infection) and malignancy that is not reflected in clinical trials but may be reflected in an unfavourable clinical consensus, as suggested by the very low usage of infliximab for plaque psoriasis (infliximab was prescribed for 0.2% of patients initiating a PBS-listed biological treatment for plaque psoriasis); (paragraph 6.34, bimekizumab PSD, March 2023 PBAC Meeting, paragraph 5.3, 7.1, risankizumab PSD, November 2023 PBAC Meeting).

2.11 Given the grounds on which PBAC excluded infliximab as a comparator for risankizumab (Paragraph 7.1, Risankizumab PSD, November 2023 PBAC Meeting), the clinical claim of superior efficacy for guselkumab versus infliximab does not appear to be crucial to the submission, as the established safety profile of infliximab suggests it is likely to be of inferior comparative safety to other bDMARDs for chronic plaque psoriasis.

2.12 The relative efficacy of guselkumab and ustekinumab was considered by PBAC in the 2018 guselkumab submission. Although some data suggested that guselkumab might

be superior the submission made a claim of non-inferiority and this was accepted by PBAC (Paragraph 6.23, 6.35, Guselkumab PSD, March 2018 PBAC Meeting).

2.13 PBAC determined in its considerations of bimekizumab and risankizumab in 2023 that they were superior to and should not be cost-minimised against ustekinumab (as well as etanercept and adalimumab).

2.14 The present submission did not make a formal claim that guselkumab is non-inferior to risankizumab, ixekizumab, bimekizumab, secukinumab and/or tildrakizumab. Rather, it assumed that this is accepted: "The submission does not intend to change the therapeutic relativities versus these biologics because in the recent considerations of bimekizumab and risankizumab 150 mg PFP and PFS, the PBAC reaffirmed the non-inferiority of risankizumab and bimekizumab with each other, as well as secukinumab, ixekizumab, tildrakizumab and guselkumab [...] and there is not [sic] further evidence available to change this consideration". The PBAC has previously considered (i) that the claims of non-inferior comparative effectiveness of risankizumab to bimekizumab, ixekizumab and guselkumab were adequately supported by the data (paragraph 7.11, risankizumab PSD, November 2023 PBAC meeting); and (ii) a claim of non-inferior effectiveness for bimekizumab versus ixekizumab, guselkumab, secukinumab and risankizumab was reasonably supported (paragraph 7.8, bimekizumab PSD, March 2022 PBAC meeting). The PBAC has not considered formal comparisons of guselkumab with ixekizumab, secukinumab or tildrakizumab previously, but these agents have been included in network meta-analyses considered as part of the bimekizumab and risankizumab submissions previously.

2.15 However, the PBAC finding that risankizumab and bimekizumab are non-inferior to one another and to ixekizumab, guselkumab, secukinumab and tildrakizumab for the purpose of cost-minimisation was not stated to be a finding that all of those treatments are mutually non-inferior or therapeutically equivalent. In particular, PBAC reviewed evidence that secukinumab and tildrakizumab "and potentially guselkumab" are less effective than bimekizumab and risankizumab, although this evidence was considered, on balance, inconclusive (Paragraph 6.40, 7.6, Bimekizumab PSD, March 2023 PBAC Meeting; Paragraph 6.25, 6.28, 7.10 Risankizumab PSD, November 2023 PBAC Meeting).

2.16 The most recent update of the Cochrane network meta-analysis, extensively considered by PBAC in relation to bimekizumab and risankizumab, supports the view that there may be differences among the bDMARDs, finding that there was high-certainty evidence that using a 90% reduction in the Psoriasis Area and Severity Index (PASI90) as the outcome:

- infliximab, bimekizumab, ixekizumab and risankizumab were the most effective therapies, and

- bimekizumab and ixekizumab were superior to secukinumab and guselkumab.[1]

2.17 PBAC has also noted, however, that even if small differences in outcomes are established, "based on extensive experience with biologics in clinical practice, there was unlikely to be any clinically significant difference in long-term outcomes between any of the biologic medicines" (paragraph 6.25, risankizumab PSD, November 2023 PBAC Meeting).

For more detail on PBAC's view, see section 7 PBAC outcome.

[1] Sbidian E, Chaimani A, Guelimi R, et al. Systemic pharmacological treatments for chronic plaque psoriasis: a network meta-analysis. Cochrane Database of Systematic Reviews 2023, Issue 7. Art. No.: CD011535. DOI: 10.1002/14651858.CD011535.pub6. Accessed 01 February 2025. For PASI90 as the outcome, risk ratio (95% CI) for ixekizumab vs guselkumab was 1.29 (1.18, 1.42); PBAC has accepted a risk difference of -10% as the noninferiority margin for PASI90 (Paragraph 6.20, Guselkumab PSD, March 2018 PBAC Meeting).

Table 2: Previous PBAC considerations of guselkumab for chronic plaque psoriasis

	PBAC meeting	Clinical Claim or Request	Outcome
PFS	March 2018 (major)	Guselkumab is: • non-inferior (and likely superior) in terms of effectiveness and non-inferior in terms of safety compared to ustekinumab and • superior in terms of effectiveness and non-inferior in terms of safety compared to adalimumab.	Non-inferiority vs ustekinumab and superiority vs adalimumab accepted; data suggested guselkumab may be superior to ustekinumab. Listing not recommended because "additional comparisons are required for the Committee to be satisfied that guselkumab is not substantially more costly than alternative therapies for which a significant improvement in efficacy or reduction of toxicity has not been demonstrated". Ixekizumab was specifically noted as an important alternative because of evidence that it is the most effective bDMARD for plaque psoriasis.
PFS	July 2018 (minor)	Sponsor accepted cost-minimisation vs ixekizumab but "acknowledged that in accepting a cost-minimisation approach for listing versus ixekizumab, guselkumab will also be considered therapeutically equivalent to and cost-minimised versus adalimumab and secukinumab".	Recommendation for listing "on a cost-minimisation basis against the lowest cost biological agent available for severe CPP".
PFP	July 2020 (minor)	Guselkumab PFP has non-inferior comparative effectiveness and non-inferior comparative safety of compared with guselkumab PFS.	The PBAC recommended the listing of guselkumab PFP under the same arrangements as the PFS. The PBAC considered that guselkumab PFP should be cost-minimised to the lowest cost biological agent available for severe CPP, noting that any of the current PBS listed bDMARDs for severe CPP could be an alternative therapy to guselkumab. At this time, the lowest cost listed biological was infliximab, which was lower cost than guselkumab PFS, so the PFP would have been priced below the PFS.
PFP	March 2021 (minor)	Requested that the PBAC reconsider its July 2020 recommendation so that guselkumab PFP is cost-minimised against the PFS rather than against the lowest cost bDMARD.	PBAC noted that to recommend listing guselkumab PFP at the higher price it would need to be satisfied that the treatment provides, for some patients, a significant improvement in efficacy or reduction of toxicity over the existing therapies. In this case, the PBAC considered that guselkumab PFP did not meet these criteria to be listed at a price higher than the lowest cost of PBS-listed bDMARDs for the treatment of severe CPP.

Source: Constructed during the evaluation from PBAC Public Summary Documents. bDMARD = biological disease-modifying anti-rheumatic drug; CPP = chronic plaque psoriasis; PFP = pre-filled pen, PFS = pre-filled syringe.

3 Requested listing

3.1 The essential elements of the requested listing are shown below. The submission proposed that the restriction should be identical to the existing restriction for the guselkumab pre-filled syringe.

MEDICINAL PRODUCT medicinal product pack	Dispensed Price for Max. Qty	**Max. qty packs**	**Max. qty units**	**№. of Rpts**	**Available brands**
Guselkumab					
Guselkumab, 100 mg, subcutaneous injection, pre-filled pen	$3,615.49 published price $[redacted] effective price (AEMP)	1	1	2	Tremfya

Severity: Severe
Condition: Chronic plaque psoriasis
Treatment Phase: Initial treatment
Restriction type: ☒Authority Required - in writing
Treatment criteria: As per current guselkumab listing
Clinical criteria: As per current guselkumab listing
Treatment Phase: Continuing treatment
Restriction type: ☒ Authority Required – in writing
Treatment criteria: As per current guselkumab listing
Clinical criteria: As per current guselkumab listing

3.2 The submission requested that the preparations of guselkumab (100 mg PFS and 100 mg PFP) be considered equivalent for the purposes of substitution.

3.3 The submission requested that the same Special Pricing Arrangement currently applying to the PFS preparation be extended to include the PFP.

3.4 The submission stated that the sponsor had submitted a request for ministerial discretion to not apply a first new brand statutory price reduction under Section 99ACB and 99ACD of the *National Health Act 1953*.

For more detail on PBAC's view, see section 7 PBAC outcome.

4 Population and disease

4.1 Plaque psoriasis is a chronic immune-mediated, painful, and disabling disease of the skin, characterised by scaling and erythematous plaques that may cause significant reductions in quality of life. The target population for the guselkumab PFP is adults with severe CPP, consistent with that of the guselkumab PFS and other listed biologics.

4.2 Currently listed biologics for CPP are:

- anti-tumour necrosis factor (TNF) agents, infliximab, adalimumab and etanercept;
- anti-IL-12/23 agent, ustekinumab;

- anti-IL-23 agents, risankizumab and tildrakizumab (guselkumab is also an IL-23 inhibitor); and
- anti-IL-17 agents, ixekizumab, bimekizumab and secukinumab.

For more detail on PBAC's view, see section 7 PBAC outcome.

5 Comparator

5.1 The submission nominated guselkumab PFS as the main comparator for the guselkumab PFP. This comparison was accepted by the PBAC as appropriate in July 2020 and March 2021.

5.2 To support the request to PBAC for re-assessment of the therapeutic relativity of guselkumab, the submission nominated adalimumab, etanercept, ustekinumab and infliximab as comparators.

5.3 These comparators were reasonable, as the purpose of the submission was to argue a claim of superior comparative effectiveness and/or safety over these therapies.

5.4 In the context of the cost-minimisation approach taken by the submission, a further consideration for PBAC is that, under Section 101(3B) of the *National Health Act 1953*, when the proposed medicine is substantially more costly than an alternative therapy, the committee cannot make a positive recommendation unless it is satisfied that, for some patients, the proposed medicine provides a significant improvement in efficacy and/or reduction of toxicity over the alternative therapy. If the committee is so satisfied, it must make a statement to this effect.

5.5 Consistent with the PBAC consideration of risankizumab 150 mg PFS in March 2024[2], all currently PBS-listed bDMARDs for chronic plaque psoriasis may be considered alternative therapies, including adalimumab, bimekizumab, etanercept, guselkumab PFS, infliximab, ixekizumab, risankizumab, secukinumab, tildrakizumab and ustekinumab. The submission made a clinical claim of superiority over adalimumab, etanercept, infliximab and ustekinumab. The clinical claims made by the submission are discussed in Section 6 below.

For more detail on PBAC's view, see section 7 PBAC outcome.

6 Consideration of the evidence

Sponsor hearing

6.1 There was no hearing for this item.

[2] *Paragraph 5.2, risankizumab PSD, March 2024 PBAC meeting*

Consumer comments

6.2 The PBAC noted the input from the Australasian College of Dermatologists (ACD) supporting the listing of guselkumab PFP.

6.3 The PBAC recalled that the ACD had provided input in March 2021 highlighting that the listing of guselkumab PFP will enable more patients to self-inject and reduce the need for regular eight weekly visits to their doctor for patients who are unable to use the currently PBS-listed guselkumab PFS.

Clinical trials

6.4 Due to the number of trials and publications presented, the summary table of trials and associated reports, and the date of the most recent PBAC consideration of those previously seen, is presented in Attachment 1.

6.5 The PBAC has previously considered all the trials presented in the submission except Zheng 2024. This trial, a placebo controlled randomised trial in 327 Chinese participants, has been published in abstract only, with the CSR provided in the submission. Its results were included in the pooled estimates of effect of guselkumab that were used in the ITCs.

6.6 The submission also presented multiple published network meta-analyses, four of which have been previously assessed by the PBAC and seven which were new. These are discussed in detail in paragraphs 6.27 to 6.33.

6.7 For the comparison of the PFS to the PFP the submission relied on the ORION trial of the PFP and the VOYAGE-1 and -2 trials using the PFS. For the comparisons between guselkumab and adalimumab there was a head-to-head comparison based on the VOYAGE trials. For the comparisons between guselkumab and ustekinumab, etanercept and infliximab, the submission presented indirect treatment comparisons based on the trials as listed in Table 3.

6.8 Five trials of ustekinumab vs placebo - PEARL, LOTUS, Igarashi 2012, AMAGINE-2 and AMAGINE-3 - were, in PBAC's judgement, inappropriately excluded from the 2018 guselkumab submission, but were added during the evaluation to the ITC and considered by PBAC (Paragraph 6.3, Guselkumab PSD, March 2018 PBAC Meeting). The present submission included the AMAGINE trials but not the other three, and gave no reason for excluding them.

6.9 The NAVIGATE trial was excluded, as it was in 2018, on the grounds that 'the trial was conducted in patients who have previously failed ustekinumab and patients were randomised to either guselkumab or ustekinumab. As re-treatment with a biologic after previous failure of that biologic is not permitted on the PBS, this trial is not relevant for inclusion in this submission' (p45 of the submission). The PBAC considered in 2018 that "this exclusion was not entirely unreasonable, [but] some patients in NAVIGATE may still be representative of the proposed PBS population, particularly since patients in the guselkumab arm of the trial would be representative of those

most likely to take up guselkumab on PBS" (Paragraph 6.4, Guselkumab PSD, March 2018 PBAC Meeting). This consideration may be more relevant now than in 2018, since the proportion of patients who have tried a biological treatment is likely to be higher.

Table 3: Trials informing the treatment comparisons

Comparison	GUS trials	Comparator trials
GUS vs ADA	VOYAGE-1 and 2	VOYAGE-1 and 2
GUS vs UST	ORION VOYAGE-1 and 2 Ohtsuki 2018 Zheng 2024	AMAGINE-2 and 3 Be VIVID PHOENIX-1 and 2 ULTIMMA-1 and 2
GUS vs ETN	ORION VOYAGE-1 and 2 Ohtsuki 2018 Zheng 2024	Gottlieb 2003 Leonardi 2003 Papp 2005 van de Kerkoff 2008
GUS vs IFX	ORION VOYAGE-1 and 2 Ohtsuki 2018 Zheng 2024	EXPRESS EXPRESS II Chaudhari 2001 SPIRIT Torii 2010 Yang 2012

Source: Table 2.4, p53 of the submission. Abbreviations: ADA = adalimumab; ETN = etanercept; GUS = guselkumab; IFX = infliximab; UST = Ustekinumab

6.10 Given the difference in dates of the trials, the patient populations would not necessarily be comparable for the ITCs. The submission cited the PSDs for guselkumab from March 2018 and risankizumab from November 2023 as saying that the trials used in the current submission were comparable. This was misleading. In 2018, when considering guselkumab vs ustekinumab the PBAC commented that the trials "examined during the evaluation enrolled similar patient populations" (Paragraph 6.9, Guselkumab PSD, March 2018 PBAC Meeting). Paragraph 6.10 of the risankizumab PSD stated that "The trials were also generally comparable in terms of design, patient population, outcome definitions and assessment time points. Aside from the notable differences in use of prior biologics, the submission argued that the trials met the transitivity assumption of the ITC" [emphasis added]. Differences in prior use of biologicals were marked: "41% in risankizumab trials, 35% in bimekizumab trials, 24% in ixekizumab trials, 22% in guselkumab trials, 20% in tildrakizumab trials, 0% in etanercept trials" (Paragraph 6.8, Risankizumab PSD, November 2023 PBAC Meeting).

6.11 Although there was a clear trend for more patients to have received prior treatment with a biological therapy in more recent trials, this was not true of Zhang, 2024, in which only 5.8% of patients had prior exposure to a bDMARD.

Comparative effectiveness

Pre-filled pen vs pre-filled syringe.

6.12 None of the trials directly compared the PFP with the PFS. The PBAC has twice previously accepted that they are equivalent (July 2020 and March 2021).

6.13 The ORION trial included an assessment of patient satisfaction with the PFP device, using the Self-Injection Assessment Questionnaire (SIAQ). The SIAQ was developed by UCB Pharma to support its trials of certolizumab pegol and is biased towards approval of self-injection.[3]

6.14 As there was no comparison with the PFS, these results did not support any claim of an advantage for the PFP.

Assessment of therapeutic relativity for clinical effectiveness – PASI outcomes

6.15 As stated in the guselkumab PSD March 2018, the PBAC has based recommendations for listing of biologics for the treatment of CPP on the proportion of patients i) achieving and ii) maintaining a PASI 75 response (≥75% improvement from baseline in the Psoriasis Area and Severity Index score). This is consistent with the PBS eligibility criteria for continued treatment with biologics. The PASI 90 (≥90% improvement from baseline) has also been used, and recent considerations have placed more weight on PASI 90.

Guselkumab vs adalimumab

6.16 The direct trials comparing guselkumab and adalimumab were considered by the PBAC in March 2018. The PBAC determined 'the claim of superior efficacy and non-inferior safety [of guselkumab] versus adalimumab to be reasonable.' (Paragraph 6.36, Guselkumab PSD, March 2018 PBAC Meeting). No data were provided in the current submission that would change this conclusion.

Guselkumab vs ustekinumab

6.17 In March 2018 the PBAC considered a comparison of guselkumab with ustekinumab based on an indirect treatment comparison. The trials of guselkumab were VOYAGE-1 and -2. In that submission, the only trials of ustekinumab included were two trials of ustekinumab vs placebo (PHOENIX-1 and -2). During the evaluation five additional placebo-controlled trials of ustekinumab were identified and included in the ITC considered by PBAC (Igarashi 2012, LOTUS and PEARL, AMAGINE-2 and AMAGINE-3).

6.18 On the basis of the ITC using these seven studies, the PBAC determined 'the claim of non-inferior efficacy and safety [of guselkumab] versus ustekinumab to be reasonable' (paragraph 6.36, guselkumab PSD, March 2018 PBAC Meeting).

6.19 The present submission included three additional trials of guselkumab: ORION (published in 2020), Ohtsuki 2018 and Zheng 2024. The data for ustekinumab were from PHOENIX-1 and -2, the ustekinumab and placebo arms of ULTIMMA -1 and 2 and

[3] Keininger D, Coteur G. Assessment of self-injection experience in patients with rheumatoid arthritis: psychometric validation of the Self-Injection Assessment Questionnaire (SIAQ). *Health Qual Life Outcomes*. 2011; doi: 10.1186/1477-7525-9-2.

BE VIVID. However, the submission again excluded Igarashi 2012, LOTUS and PEARL. No justification for their exclusion was provided.

6.20 Results for the ITCs comparing guselkumab vs ustekinumab in the present submission and in the 2018 ITC as considered by PBAC are shown in Table 4.

Table 4: ITCs of GUS vs UST

	Intervention Response Rate, %	Placebo Response Rate, %	OR (95% CI)	RR (95%CI)	RD (95%CI)
PASI 75					
GUS pooled estimate, 2018	88.2%	7.1%	**105.8 (45.7, 244.9)**	NR	**0.82 (0.75, 0.89)**
GUS pooled estimate, 2025	88.9%	6.5%	**120.4 (69.8, 207.8)**	**13.1 (9.7, 17.6)**	**0.84 (0.79, 0.88)**
UST pooled estimate, 2018	71.6%	5.8%	**41.7 (29.3, 59.5)**	NR	**0.66 (0.61, 0.74)**
UST pooled estimate, 2025	70.9%	5.7%	**38.1 (24.9, 58.2)**	**11.7 (8.1, 16.9)**	**0.65 (0.62, 0.68)**
Indirect comparison, 2018	NA	NA	2.5 (1.0, 6.3)	NR	0.16 (0.08, 0.24)
Indirect comparison, 2025	NA	NA	**3.2 (1.6, 6.3)**	1.1 (0.7, 1.8)	**0.18 (0.13, 0.24)**
PASI 90					
GUS pooled estimate, 2018	71.3%	2.6%	**93.3 (50.3, 173.1)**	NR	**0.69 (0.65, 0.72)**
GUS pooled estimate, 2025	73.5%	2.1%	**112.8 (65.3, 194.9)**	**30.5 (18.2, 51.3)**	**0.73 (0.67, 0.78)**
UST pooled estimate, 2018	47.9%	1.6%	**53.5 (30.2, 94.9)**	NR	**0.46 (0.36, 0.56)**
UST pooled estimate, 2025	46.2%	2.2%	**34.0 (21.1, 54.8)**	**18.6 (11.7, 29.4)**	**0.44 (0.41, 0.46)**
Indirect comparison, 2018	NA	NA	1.7 (0.8, 4.1)	NR	**0.23 (0.12, 0.34)**
Indirect comparison, 2025	NA	NA	**3.3 (1.6, 6.8)**	1.6 (0.8, 3.3)	**0.29 (0.22, 0.35)**

Source: Tables 4 and 5, paragraph 6.20, guselkumab PSD, March 2018 PBAC Meeting; Tables 2.88, 2.891, pp202, 205 of the submission. CI = confidence interval; GUS = guselkumab; OR = odds ratio; NA = not applicable; NR = not reported; PASI = psoriasis area and severity index; RD = risk difference; RR = relative risk; UST = ustekinumab
Bolded results are statistically significant; the non-inferiority margin for RD was accepted as -10%.

6.21 The inclusion of the new trials of guselkumab versus placebo increased the estimates of effect size for guselkumab vs placebo and narrowed the confidence intervals. The inappropriate exclusion of three trials of ustekinumab vs placebo (PEARL, LOTUS and Igarashi, 2012) reduced the estimates of effect size for ustekinumab vs placebo slightly for PASI 75 and substantially for PASI 90. As a result, the 2025 ITCs were more favourable to guselkumab than the 2018 ITCs.

6.22 However, the overall conclusion in 2025 was similar to that in 2018: risk differences and odds ratios consistently favoured guselkumab, but relative risks did not. If the PEARL, LOTUS and Igarashi, 2012 trials were included in the 2025 ITC, the point estimates would be lower than in the submitted 2025 ITC, but the overall picture

would be similar (see Table 6, paragraph 6.21, guselkumab PSD, March 2018 PBAC Meeting).

6.23 The Pre-Sub-Committee Response (PSCR) argued it was reasonable to exclude PEARL, LOTUS and Igarashi 2012 trials that were previously considered by PBAC as they used dosage regimens that do not align with the PBS listings of ustekinumab for chronic plaque psoriasis. The PSCR also clarified that the AMAGINE -2 and -3 trials were included in the submission, however only data for the subgroup that aligns with the approved weight-based dosing regimen were included. Furthermore, the PSCR also agreed with the evaluation conclusion that the inclusion of the additional noted trials results in the overall picture being similar.

Guselkumab vs etanercept

6.24 The PBAC has not previously considered a comparison between guselkumab and etanercept. The current submission presented an ITC with placebo as common comparator using the same five trials of guselkumab as for the ITC versus ustekinumab and four trials of etanercept 50mg weekly or 25mg twice weekly (Gottlieb 2003, Leonardi 2003, Papp 2005, van de Kerkoff 2008. These trials were included in the risankizumab submission considered by PBAC in November 2023.

6.25 However, the PBAC recommended listing of ustekinumab on the basis of superior efficacy compared to etanercept in adult (Paragraph 9, Ustekinumab PSD, November 2009 PBAC Meeting) and paediatric patients (Paragraph 6.40, Ustekinumab PSD, March 2021 PBAC Meeting). Relatively low efficacy of etanercept in plaque psoriasis has also been a consistent finding of network meta-analyses considered by PBAC.

6.26 For these reasons, a claim of superiority for guselkumab vs etanercept is reasonable.

Guselkumab vs infliximab.

6.27 In its consideration of risankizumab in November 2023, the PBAC considered that infliximab has inferior comparative safety compared to risankizumab (paragraph 7.5, risankizumab PSD, November 2023 PBAC meeting) and it may be reasonable to extend this conclusion to a comparison of guselkumab and infliximab. For this reason, the results of this comparison are are not presented.

Network meta-analyses

6.28 The submission presented the results of network meta- analyses as additional support to the claims of superior efficacy and safety. These included the published NMAs previously considered in the risankizumab and bimekizumab evaluations: Armstrong 2020, Armstrong 2022a, Armstrong 2022b and Sbidian 2023, and an additional seven publications: Sawyer 2019, Erichsen 2020, Xue 2020, Armstrong 2021, Blauvelt 2022, Yasmeen 2022, and Armstrong 2023.

6.29 A Bayesian approach was more commonly used (Sawyer, 2019; Armstrong, 2020; Armstrong 2021; Armstrong 2022a; Armstrong 2022b; Armstrong 2023; Xue, 2020; Yasmeen, 2022; Blauvelt, 2022) than a frequentist approach (Sbidian 2023; Erichsen

2020). NMA methodology may have significant effects on the results (paragraph 6.40, bimekizumab PSD, March 2023 PBAC Meeting).

6.30 There were substantial differences in the trials included. The number of trials analysed varied from 14 to 179; in some cases, this was at least partly due to design, such as a focus on outcomes of longer-term treatment (e.g., one year in Yasmeen 2022 and Blauvelt 2022), which not all trials provided data for, but in others there was no obvious reason.

6.31 The NMAs were paid for by the manufacturer of one of the biologicals and employees of the sponsor were co-authors in all cases except Erichsen, 2020, which did not declare a funding source, and Sbidian, 2023, which was publicly funded.

6.32 Armstrong 2020, 2021 and 2022b were paid for by the manufacturer of risankizumab (AbbVie); Armstrong 2022a was paid for by the manufacturer of bimekizumab (UCB Pharma) and Armstrong 2023 was paid for by the manufacturer of deucravacitinib (Bristol Myers Squibb). Sawyer, 2019, Yasmeen 2022 were paid for by the manufacturer of brodalumab (LEO) and Xue, 2020 by a local distributor of brodalumab (Bausch Health, Canada). Blauvelt, 2022 was paid for by the manufacturer of ixekizumab (Eli Lilly).

6.33 The summary results from the NMAs are shown in Table 5 and Table 6, including a comparison with the ITC results as presented in the submission.

6.34 A number of differences among treatments reported in the NMAs and ITC were affected by methodological choices:

- It made an important difference whether odds ratio or relative risk was the measure of relative effect. PBAC has previously been reluctant to conclude that treatments were of different efficacy when risk statistics were discrepant (paragraph 6.24, guselkumab PSD, March 2018 PBAC Meeting; paragraph 6.17, bimekizumab PSD, March 2023 PBAC Meeting; paragraph 6.16, 6.25, risankizumab PSD, November 2023 PBAC Meeting).
- It also made a difference whether the results were analysed as the chance of being a responder or as the chance of being a non-responder. PBAC has previously been reluctant to attribute clinical significance to differences dependent on the choice of framing (paragraph 6.21, guselkumab PSD, March 2018 PBAC Meeting).
- There were marked differences in estimates of relative efficacy between network meta-analyses. In Armstrong 2022a the relative risk (95% CI) for PASI90 response for guselkumab vs infliximab was 1.24 (1.07, 1.44) and in Sbidian 2023 it was 0.45 (0.19, 1.09). The relative risk (95% CI) for PASI90 for guselkumab vs etanercept reported by Sbidian 2023 was 2.29 (2.04, 2.57), and by Xue 2020 was 2.29 (1.75, 3.01) but by Armstrong 2022a was 4.84 (3.60, 6.51).

Table 5: NMA efficacy outcomes (induction period)

	GUS versus comparators (OR; 95% CI)			
	ADA	**UST**	**ETN**	**IFX**
PASI 75				
Armstrong 2020	**2.88 (2.27, 3.70)**	**2.85 (2.16, 3.80)**	**9.78 (7.16, 13.45)**	**1.60 (1.12, 2.27)**
Armstrong 2021	**2.64 (2.05, 3.45)**	**2.36 (1.79, 3.15)**	**8.65 (6.27, 12.12)**	**1.47 (1.01, 2.14)**
Armstrong 2023	**2.94 (1.63, 5.29)**	**3.00 (1.67, 5.40)**	**11.25 (5.87, 21.57)**	**1.94 (1.03, 3.65)**
ITC results from this submission^	**3.23 (2.43, 4.30)**	**3.16 (1.58, 6.32)**	**7.46 (3.40, 16.38)**	0.99 (0.43, 2.26)
PASI 90				
Armstrong 2020	**2.65 (2.14, 3.31)**	**2.62 (2.03, 3.40)**	**9.41 (6.93, 12.83)**	**1.52 (1.11, 2.09)**
Armstrong 2021	**2.46 (1.94, 3.14)**	**2.21 (1.71, 2.88)**	**8.43 (6.11, 11.82)**	**1.41 (1.01, 1.99)**
Armstrong 2023	**2.47 (1.40, 4.36)**	**2.58 (1.46, 4.54)**	**11.53 (5.86, 22.69)**	**1.84 (1.02, 3.34)**
ITC results from this submission^	**2.71 (2.16, 3.4)**	**3.32 (1.61, 6.85)**	**7.41 (2.19, 25.05)**	1.04 (0.31, 3.46)
	GUS versus comparators (RR; 95% CI)			
	ADA	**UST**	**ETN**	**IFX**
PASI 75				
Armstrong 2022a	**1.23 (1.14, 1.33)**	**1.21 (1.12, 1.30)**	**2.28 (1.92, 2.70)**	1.08 (1.00, 1.17)
Sbidian 2023	**1.22 (1.08, 1.37)**	1.12 (0.97, 1.30)	**1.58 (1.34, 1.87)**	0.68 (0.43, 1.08)
Sawyer 2019	**1.23 (1.11, 1.43)**	**1.24 (1.11, 1.46)**	**2.22 (1.59, 3.43)**	**1.08 (1.02, 1.20)**
Xue 2020	**1.32 (1.14, 1.53)**	-	**1.56 (1.35, 1.81)**	0.95 (0.85, 1.07)
ITC results from this submission^	**1.25 (1.18, 1.33)**	1.12 (0.69, 1.79)	1.19 (0.65, 2.20)	0.66 (0.29, 1.52)
PASI 90				
Armstrong 2022a	**1.48 (1.29, 1.70)**	**1.49 (1.30, 1.71)**	**4.84 (3.60, 6.51)**	**1.24 (1.07, 1.44)**
Sbidian 2023	**1.37 (1.28, 1.48)**	**1.30 (1.02, 1.67)**	**2.29 (2.04, 2.57)**	0.45 (0.19, 1.09)
Sawyer 2019	**1.50 (1.27, 1.87)**	**1.51 (1.27, 1.93)**	**3.93 (2.48, 6.84)**	**1.18 (1.05, 1.40)**
Erichsen 2020	**1.48 (1.35, 1.63)**	-	**-**	-
Xue 2020	**1.70 (1.28, 2.26)**	-	**2.29 (1.75, 3.01)**	0.90 (0.71, 1.16)
ITC results from this submission^	**1.48 (1.35, 1.63)**	1.64 (0.82, 3.28)	2.27 (0.69, 7.46)	0.61 (0.19, 1.97)

Source: Table 2.107, p 260 of the submission.

ITC spreadsheet; Armstrong *et al.* (2020) Suppl Figure 1 p 19; Calculated from Armstrong *et al.* (2023) Figure 4a p 10, Figure S2 p 4-5; Armstrong *et al.* (2021) Table 2 p 10, Suppl Table S2 p 21; Sawyer *et al.* (2019) Suppl Table S6; Erichsen *et al.* (2020) Table 2 p 6; Calculated from Xue *et al.* (2020) Table 4 p 8; Calculated from Armstrong *et al.* (2022a) Suppl Figure S2 p 38-40; Sbidian *et al.* (2023) Figure 8 p 34, Figure 1 p 18. ^Refers to the meta-analysis of guselkumab versus adalimumab or Bucher indirect treatment comparisons via placebo. Abbreviations: ADA = adalimumab; CI = confidence interval; ETN = etanercept; GUS = guselkumab; IFX = infliximab; ITC = indirect treatment comparison; NMA = network meta-analysis; OR = odds ratio; PASI = psoriasis area and severity index; RR = relative risk; UST = Ustekinumab. Blue shaded NMAs had previously been considered by the PBAC (Risankizumab PSD November 2023, Attachment 2.2; Bimekizumab PSD March 2023; Attachment 2.3)

Table 6: NMA efficacy outcomes (maintenance phase)

	GUS versus (OR; 95% CI)			
	ADA	**UST**	**ETN**	**IFX**
PASI 75				
Armstrong 2020	**3.68 (1.88, 7.18)**	**2.85 (1.84, 4.40)**	**6.00 (4.11, 8.76)**	**5.37 (3.65, 7.90)**
Armstrong 2022b	**3.59 (2.70, 4.76)**	**3.01 (2.19, 4.16)**	**6.23 (4.26, 9.17)**	-
Armstrong 2021	**3.70 (2.78, 4.92)**	**3.20 (2.32, 4.48)**	**6.51 (4.44, 9.61)**	-
VOYAGE-1*	**4.32 (2.90, 6.43)**	-	-	-
PASI 90				
Armstrong 2020	**3.80 (2.58, 5.60)**	**2.96 (2.16, 4.06)**	**6.50 (4.68, 9.04)**	**4.86 (2.94, 8.04)**
Armstrong 2022b	**3.30 (2.52, 4.33)**	**2.78 (2.09, 3.72)**	**5.70 (3.97, 8.25)**	-
Armstrong 2021	**3.36 (2.56, 4.42)**	**2.92 (2.19, 3.94)**	**5.88 (4.08, 8.50)**	-
VOYAGE-1*	**3.50 (2.51, 4.88)**	-	-	-
	GUS versus (RR; 95% CI)			
	ADA	**UST**	**ETN**	**IFX**
PASI 75				
Sbidian 2023	**1.40 (1.28, 1.54)**	-	-	-
Blauvelt 2022	**1.48 (1.32, 1.64)**	-	**2.13 (1.84, 2.41)**	**1.39 (1.24, 1.55)**
Yasmeen 2022	**1.29 (1.09, 1.75)**	**1.24 (1.09, 1.58)**	**1.59 (1.21, 2.51)**	-
VOYAGE-1*	**1.40 (1.28, 1.54)**	-	-	-
PASI 90				
Sbidian 2023	**1.59 (1.40, 1.81)**	-	-	-
Yasmeen 2022	**1.51 (1.19, 2.22)**	**1.43 (1.17, 1.94)**	**2.05 (1.40, 3.58)**	-
VOYAGE-1*	**1.59 (1.40, 1.81)**	-	-	-

Source: Table 2.108, p262 of the submission.
ITC spreadsheet; Armstrong *et al.* (2020) Suppl Figure 2 p 24; Armstrong *et al.* (2022b) Table 2 p 11-12, Suppl Table 2 p 5; Armstrong et al, 2021 Table 4 p 15, Suppl Table S4 p 27; Blauvelt *et al.* (2022) Fig 3 p 9; Yasmeen *et al.* (2022) Table 2 p 10; Sbidian *et al.* (2023) p 46
Abbreviations: ADA = adalimumab; CI = confidence interval; ETN = etanercept; GUS = guselkumab; IFX = infliximab; NMA = network meta-analysis; OR = odds ratio; PASI = psoriasis area and severity index; RR = relative risk; UST = ustekinumab
* Calculated using RevMan v5.3 for the purpose of this submission
Blue shaded NMAs had previously been considered by the PBAC (Risankizumab PSD November 2023, Attachment 2.2; Bimekizumab PSD March 2023; Attachment 2.3)

Comparative harms

6.35 A summary of the extensive data for comparative harms was provided during the evaluation. However, as the comparators were not relevant the data are not material to the PBAC's assessment of the submission.

Benefits/harms

6.36 The submission made a claim of non-inferiority of the PFP with respect to the PFS so a benefits/harms comparison is not presented. A benefits and harms table is not presented for the other comparators.

Clinical claim

6.37 The submission described the guselkumab PFP as non-inferior in efficacy and safety to the guselkumab PFS. This has previously been accepted by the PBAC.

6.38 The submission described guselkumab as having superior efficacy versus adalimumab, ustekinumab, etanercept and infliximab based on the efficacy outcomes of PASI 75 and PASI 90.

6.39 The claim has been accepted previously for adalimumab.

6.40 The claim was adequately supported for etanercept.

6.41 The claim for infliximab is difficult to assess, but the therapeutic conclusion that infliximab has inferior safety to risankizumab (as discussed in paragraph 7.5, risankizumab PSD, November 2023 PBAC meeting) is also likely applicable to guselkumab.

6.42 The evaluation considered the claim for ustekinumab was, as in 2018, uncertain. Although evidence from guselkumab trials not available in 2018 increases the estimated difference in effect size of guselkumab vs ustekinumab, the claim relies on an indirect comparison for which the transitivity assumption is uncertain, from which some trials which PBAC has previously determined to be relevant were excluded, and in which some estimates of relative effect do not show superiority. The PBAC has accepted that bimekizumab and risankizumab are superior to ustekinumab (paragraph 7.1, bimekizumab PSD, March 2023 PBAC Meeting; paragraph 7.1, risankizumab PSD, November 2023 PBAC Meeting). However, the evaluation considered accepting the superiority claims for bimekizumab and risankizumab over ustekinumab does not establish that guselkumab is superior to ustekinumab.

6.43 No data were presented to support a claim that guselkumab is non-inferior to bimekizumab, risankizumab, tildrakizumab, secukinumab and/or ixekizumab. Rather, it was assumed this was established by PBAC's previous advice that bimekizumab and risankizumab were non-inferior to one or several other agents, including guselkumab (see paragraph 2.14).

6.44 The submission described guselkumab as having non-inferior safety versus adalimumab, ustekinumab and etanercept and likely superior safety versus infliximab. This claim has been accepted previously for adalimumab, etanercept and ustekinumab and PBAC has previously considered IFX to have relatively poor tolerability (paragraph 7.5, risankizumab PSD, November 2023 PBAC meeting).

6.45 The PBAC considered that the claims of superior comparative effectiveness and non-inferior comparative safety to adalimumab, etanercept and ustekinumab were reasonable. In addition, the PBAC considered it was reasonable for infliximab to not be considered an alternative therapy to guselkumab PFP for CPP and therefore it was not necessary to draw conclusions with respect to the clinical claim versus infliximab.

Economic analysis

6.46 The submission presented a cost minimisation approach for the guselkumab 100 mg/mL PFP compared to the 100 mg/mL PFS, proposing that the PFP be listed at the same published and effective AEMP as the PFS.

6.47 The submission claimed that the clinical evidence supported the clinical claim that guselkumab has superior efficacy to adalimumab, ustekinumab, etanercept and infliximab (based on the outcomes of PASI 75 and PASI 90), non-inferior safety versus

adalimumab, ustekinumab and etanercept and likely superior safety versus infliximab. The submission stated that the sponsor 'consider[s] that the current effective AEMP of guselkumab PFS for adult severe CPP is likely reflective of the price of the least costly biologic amongst those biologics that PBAC will likely consider that guselkumab PFP be cost-minimised to (as no evidence was provided to support a claim of superior efficacy and/or safety) including guselkumab PFS, bimekizumab, risankizumab, ixekizumab, secukinumab and tildrakizumab. This is because the prices of these biologics were most recently aligned through reference pricing changes following the initial PBS listing of risankizumab in December 2019 with no price changes subsequently'.

6.48 The proposed current and effective prices (AEMP) for guselkumab PFS and PFP are shown in Table 7. Equi-effective doses were assumed to be 1:1, as previously accepted by the PBAC.

Table 7: Current and proposed published and effective ex-manufacturer prices of guselkumab

	Strength	Manufacturer pack size	Published ex-manufacturer price	Effective ex-manufacturer price
Guselkumab PFS [a]	100 mg	1	$3,452.89	$ [redacted]
Guselkumab PFP	100 mg	1	$3,452.89	$ [redacted]

Source: Table 3.1, p 287 of the submission. PFP = pre-filled pen; PFS = pre-filled syringe. [a] as of 1 October 2024

6.49 Should the PBAC accept the clinical claim of overall non-inferior effectiveness and safety, the cost-minimisation approach must establish that the cost per patient for treatment with the PFS would be no more than the cost per patient of the PFP and alternative therapies. Where these cost per patient calculations are uncertain, the guiding principle is that the Australian Government should not bear the financial risk of this uncertainty because the Australian population already has access to therapy that is at least as effective and safe. In this case, the PBAC should consider the following parameters: Alternative PBS listed bDMARDs for CPP that are of non-inferior comparative effectiveness and safety to GUS may be less costly.

Drug cost/patient/year

6.50 Based on the effective ex-manufacturer price, the cost per patient per year would be $[redacted] in the first year allowing for the loading doses and in subsequent years would be $[redacted].

Estimated PBS usage & financial implications

6.51 This submission was not considered by DUSC. The submission presented a market share approach to the estimates of use and financial impact of listing guselkumab PFP, assuming that it would only substitute for the guselkumab PFS. This approach was accepted by the PBAC for risankizumab in November 2023.

Table 8: Key inputs for financial estimates

Parameter	Value applied and source	Comment
Predicted prescriptions for guselkumab PFS	Services Australia PBS statistics for item 11614G fore Feb 2019-August 2024, extrapolated using logarithmic trend analysis. Prescriptions 2024: [redacted] [1] 2025: [redacted] [2] 2026: [redacted] [2] 2027: [redacted] [2] 2028: [redacted] [2] 2029: [redacted] [2] 2030: [redacted] [2]	Appropriate
Uptake rate for guselkumab PFP	Uptake rate, based on observed distribution of use of guselkumab PFS and PFP for psoriatic arthritis from 2021-2024 YTD. 2025: [redacted]% 2026: [redacted]% 2027: [redacted]% 2028: [redacted]% 2029: [redacted]% 2030: [redacted]%	Reasonable but there may be patients switching from other drugs.
Prices of PFS and PFP, AEMP	<table><tr><td></td><td>PFS</td><td>PFP</td></tr><tr><td>Published:</td><td>$3,452.89</td><td>$3,452.89</td></tr><tr><td>Effective:</td><td>$[redacted]</td><td>$[redacted]</td></tr></table>	Appropriate, if basis for cost minimisation approach is accepted
Copayments	<table><tr><td></td><td>PBS</td><td>RPBS</td></tr><tr><td>%use</td><td>99.31%</td><td>0.69%</td></tr><tr><td>Average copayment</td><td>$24.58</td><td>$6.16</td></tr></table>	Appropriate

Source: Table 4.1, p290 of the submission. AEMP = approved ex-manufacturer price, PFS = pre-filled syringe, PFP = pre-filled pen, PBS = Pharmaceutical Benefits Scheme, RPBS = Repatriation Pharmaceutical Benefits Scheme, YTD = year to date

The redacted values correspond to the following ranges:

[1] *20,000 to < 30,000*

[2] *30,000 to < 40,000*

6.52 The estimated use and financial implications, using the effective DPMQ, is shown in Table 9.

Table 9: Estimated use and financial implications, effective DPMQ

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Estimated extent of use						
Number of patients treated						
Number of scripts dispensed[a]	[redacted][1]	[redacted][1]	[redacted][1]	[redacted][2]	[redacted][2]	[redacted][2]
Estimated financial implications of guselkumab PFP						
Cost to PBS/RPBS less copayments	$[redacted][3]	$[redacted][3]	$[redacted][4]	$[redacted][4]	$[redacted][4]	$[redacted][5]
Estimated financial implications for guselkumab PFS						
Number of scripts dispensed[a]	[redacted][1]	[redacted][1]	[redacted][1]	[redacted][2]	[redacted][2]	[redacted][2]
Cost to PBS/RPBS less copayments	$[redacted][3]	$[redacted][3]	$[redacted][4]	$[redacted][4]	$[redacted][4]	$[redacted][5]
Net financial implications						
Net cost to PBS/RPBS	$0	$0	$0	$0	$0	$0

Source: Tables 4.4, 4.5, 4.7, 4.8, 4.11, 4.12, pp292, 294, 295, 297, 298 of the submission.

[a] Assuming {number of scripts} per year as estimated by the submission.

The redacted values correspond to the following ranges:

[1] *20,000 to < 30,000*

[2] *30,000 to < 40,000*

[3] *$30 million to < $40 million*

[4] *$40 million to < $50 million*

[5] *$50 million to < $60 million*

6.53 The total cost to the PBS/RPBS of listing guselkumab PFP was estimated to be $50 million to < $60 million in Year 6, and a total of $200 million to < $300 million in the first 6 years of listing. The submission stated that this would be completely offset by the reduction in the cost of prescriptions for the PFS. The net cost, taking account of the Special Pricing Arrangement, was estimated to be zero.

6.54 The submission did not provide any sensitivity analyses for the estimates.

Quality Use of Medicines

6.55 The submission stated that appropriate education, resources and support will be provided to patients, prescribers, dispensers and dermatology nurses to ensure quality use of the guselkumab PFP.

For more detail on PBAC's view, see section 7 PBAC outcome.

7 PBAC Outcome

7.1 The PBAC recommended the General Schedule, Authority Required (in writing) listing of guselkumab 100 mg pre-filled pen (PFP), under the same arrangements as the currently listed guselkumab pre-filled syringe (PFS), for the treatment of severe chronic plaque psoriasis (CPP). The PBAC's recommendation for listing was based on, among other matters, its assessment that the cost effectiveness of guselkumab PFP would be acceptable if it were cost-minimised to the least costly alternative therapy of guselkumab PFS, bimekizumab, ixekizumab, tildrakizumab, risankizumab and secukinumab.

7.2 The PBAC recalled at its March 2021 meeting that it reaffirmed its recommendation made in July 2020 that guselkumab PFP be listed on a cost minimisation basis with the

lowest cost PBS-listed biologic for the treatment of CPP and advised the basis of this recommendation differed to that of the previous outcome. Overall, the PBAC considered there was sufficient evidence presented to conclude that guselkumab provides, for some patients, a significant improvement in efficacy over adalimumab, etanercept and ustekinumab (these claims are discussed further below).

7.3 The PBAC noted the submission nominated the PFS form of guselkumab as the main comparator, and adalimumab, etanercept, ustekinumab and infliximab as additional comparators. The PBAC considered this was reasonable. However, the PBAC also considered the other therapies listed on the PBS for CPP, including bimekizumab, ixekizumab, risankizumab, secukinumab and tildrakizumab were alternative therapies for guselkumab, and the submission did not seek to alter therapeutic relativities for these therapies established when the PBAC considered risankizumab 150 mg in November 2023 (paragraphs 7.8-7.12, risankizumab PSD, November 2023 PBAC meeting).

7.4 With respect to the comparative effectiveness claims versus the other biologic therapies nominated as comparators by the submission:

- The PBAC recalled it has previously considered the PFP and PFS forms of guselkumab are equivalent (paragraph 6.11 refers).
- The PBAC recalled that in its original consideration of guselkumab PFS that a claim of superior effectiveness over adalimumab (paragraphs 6.16 refers) was adequately supported.
- The PBAC noted no formal comparison of guselkumab and etanercept has been undertaken in previous submissions and the current submission presented an indirect treatment comparison (paragraph **Error! Reference source not found.** refers), and also recalled it has previously considered other therapies, including ustekinumab, have superior efficacy compared to etanercept (paragraph 6.24 refers). The PBAC considered that it was reasonable to conclude that guselkumab likely has superior comparative effectiveness to etanercept.
- The PBAC recalled when it considered risankizumab 150 mg pre-filled pen and syringe in November 2023 that it considered infliximab to be associated with serious adverse events and that very few new patients initiate that therapy (paragraph 7.5, risankizumab PSD, November 2023 PBAC meeting), and considered that advice was also likely applicable to guselkumab.

7.5 The PBAC considered the claim of superior comparative effectiveness to ustekinumab to be the least certain, however formed the view that based on the totality of the evidence that it may be reasonable to support such a claim. Specifically:

- The PBAC noted statistical significance in the ITC data provided in the PSCR and the Pre-PBAC Response, with most results favouring guselkumab over ustekinumab for the outcomes of PASI75 and PASI90 based on odds ratio (OD) and

risk difference (RD), but noting the inconsistent results based on relative risk (RR) (Table 4 and paragraph 6.23 refer).

- The PBAC noted the network meta-analyses (NMAs) presented and considered that whilst there are underlying differences in the approaches between the Armstrong 2022 and Sbidian 2023 analyses, that overall the evidence was also generally supportive of the claim of superior comparative effectiveness to ustekinumab (Table 5 and paragraph 6.30 refer).The PBAC noted the submission described guselkumab as having non-inferior safety versus adalimumab, ustekinumab and etanercept and likely superior safety versus infliximab. The PBAC considered this to be reasonable with reference to past recommendations.

7.6 The PBAC noted the submission did not make explicit clinical claims versus the other PBS listed therapies for CPP, including bimekizumab, ixekizumab, risankizumab, secukinumab and tildrakizumab and did not seek to alter the conclusions of non-inferior comparative effectiveness and safety of these agents (plus guselkumab) established when the PBAC considered risankizumab in November 2023 (as discussed above). The PBAC considered that in the absence of any data to the contrary, it was reasonable for these therapeutic relativities to be maintained, and recalled it had previously considered that risankizumab and guselkumab were of non-inferior comparative effectiveness to each other (paragraph 7.11, risankizumab PSD, November 2023 PBAC meeting) and that risankizumab was also non-inferior to bimekizumab, ixekizumab, tildrakizumab and secukinumab.

7.7 The PBAC noted the submission described guselkumab as having non-inferior comparative safety to adalimumab, etanercept and ustekinumab. The PBAC recalled when it considered risankizumab in November 2023 that the available evidence supported a conclusion that bimekizumab, guselkumab, ixekizumab, secukinumab, risankizumab, tildrakizumab, adalimumab, ustekinumab and etanercept were of non-inferior comparative safety (paragraph 7.12, risankizumab PSD, November 2023 PBAC meeting) and considered no evidence was presented which would alter this conclusion.

7.8 The PBAC considered a standard cost minimisation approach with costs over two years was appropriate, consistent with the previous approach for biologics for CPP. Whilst the PBAC considered it was reasonable for the guselkumab PFP to be listed on a cost minimisation basis with the PFS, the PBAC considered the listing should also not be more costly than bimekizumab, ixekizumab, secukinumab, risankizumab, or tildrakizumab. The PBAC accepted the equi-effective doses of guselkumab PFP and guselkumab PFS to be 1:1 (100 mg at week 0 and 4 then every 8 weeks) and further advised that equi-effective dosing for the alternative biologics (in order to determine least costly) could be derived from the respective Product Information and with reference to available Public Summary Documents for bimekizumab, ixekizumab, tildrakizumab, risankizumab and secukinumab.

7.9 The PBAC considered that GUS PFP will predominantly replace GUS PFS in practice and

given its recommendation was on a cost minimisation with the least costly alternative therapy (not including adalimumab, etanercept, ustekinumab or infliximab), that the listing of GUS PFP would likely be cost neutral.

7.10 The PBAC recalled in its recommendation for risankizumab in November 2023 that it considered it would be timely to review its approach to considering applications for new forms of listed drugs (paragraph 7.15, risankizumab PSD, November 2023 PBAC meeting). The Committee considered that such a review would be informative.

7.11 The PBAC advised, under Section 101 (4AACD) of the *National Health Act*, that guselkumab PFP and guselkumab PFS should be considered equivalent for the purposes of substitution (i.e., 'a' flagged in the Schedule with a NOTE stating PBS of one form and PBS of another form are equivalent for the purposes of substitution).

7.12 The PBAC noted that its recommendation was on a cost-minimisation basis and advised that, because guselkumab PFP is not expected to provide a substantial and clinically relevant improvement in efficacy, or reduction of toxicity, over guselkumab PFS, bimekizumab, ixekizumab, tildrakizumab, risankizumab or secukinumab, or not expected to address a high and urgent unmet clinical need given the presence of an alternative therapy, the criteria prescribed by the *National Health (Pharmaceuticals and Vaccines – Cost Recovery) Regulations 2022* for Pricing Pathway A were not met.

7.13 The PBAC noted that this submission is not eligible for an Independent Review as it received a positive recommendation.

Outcome:
Recommended

8 Recommended listing

8.1 Amend existing item:

MEDICINAL PRODUCT **medicinal product pack**	**PBS item code**	**Max. qty packs**	**Max. qty units**	**№. of Rpts**	**Available brands**
GUSELKUMAB					
guselkumab, 100 mg/mL injection, 1 x 1mL syringe	11614G	1	1	2	Tremfya
guselkumab, 100 mg/mL, 1 x 1mL pen device	*New*	*1*	*1*	*2*	*Tremfya*
Administrative Advice: *Pharmaceutical benefits that have the form guselkumab 100mg/mL syringes and pharmaceutical benefits that have the form guselkumab 100mg/mL pen devices are equivalent for the purposes of substitution.*					
Restriction type: ☒ Authority Required (FULL assessment) in writing only via post/HPOS upload)					
Severity: Severe					
Condition: Chronic plaque psoriasis					
Treatment Phase: Initial treatment, continuing treatment					
Restriction criteria: As per current guselkumab listing (not included in full for brevity)					

These restrictions may be subject to further review. Should there be any changes made to the restriction the sponsor will be informed.

9 Context for Decision

The PBAC helps decide whether and, if so, how medicines should be subsidised through the Pharmaceutical Benefits Scheme (PBS) in Australia. It considers applications regarding the listing of medicines on the PBS and provides advice about other matters relating to the operation of the PBS in this context. A PBAC decision in relation to PBS listings does not necessarily represent a final PBAC view about the merits of the medicine or the circumstances in which it should be made available through the PBS. The PBAC welcomes applications containing new information at any time.

10 Sponsor's Comment

The sponsor had no comment.

ATTACHMENT 1: Trials and associated reports presented in the submission

Trial	Protocol title/ Publication title	Publication citation	PBAC consideration
GUS			
GUS versus PBO			
ORION NCT02905331	Efficacy and Safety Study of Guselkumab in the Treatment of Participants With Moderate to Severe Plaque-Type Psoriasis Published as: Ferris et al. (2020). Efficacy and safety of guselkumab, administered with a novel patient-controlled injector (One-Press), for moderate-to-severe psoriasis: results from the phase 3 ORION study.	J Dermatolog Treat. 2020 Mar;31(2):152-159. doi: 10.1080/09546634.2019.1587145. Epub 2019 Mar 19. PMID: 30887876.	Risankizumab November 2023 (In TGA PI, not presented to PBAC in GUS PFP 2020 sub - lodged as Committee Sec)
Ohtsuki 2018	A Phase 3, Multicenter, Randomized, Double-blind, Placebo-controlled Study Evaluating the Efficacy and Safety of CNTO 1959 (guselkumab) in the Treatment of Subjects With Moderate to Severe Plaque-type Psoriasis Published as: Ohtsuki et al. (2018). Guselkumab, an anti-interleukin-23 monoclonal antibody, for the treatment of moderate to severe plaque-type psoriasis in Japanese patients: Efficacy and safety results from a phase 3, randomized, double-blind, placebo-controlled study.	J Dermatol. 2018 Sep;45(9):1053-1062. doi: 10.1111/1346-8138.14504. Epub 2018 Jun 15. PMID: 29905383; PMCID: PMC6175099	Risankizumab November 2023 (In TGA PI, not presented to PBAC in GUS PFP 2020 sub - lodged as Committee Sec)
Zheng 2024	A Phase 4, Randomized, Double-blind, Placebo-controlled, Parallel-group, Multicenter study to evaluate the efficacy and safety of guselkumab (TREMFYA®) in Chinese participants with moderate to severe plaque psoriasis Published as: Zheng et al. (2024a). Efficacy of Guselkumab in Chinese Patients with Moderate-to-Severe Plaque Psoriasis: Subgroup Analysis of a Randomized, Double-Blind, Placebo-Controlled Phase 4 Study According to Prior Systemic Treatment. Zheng et al. (2024b). Impact of Guselkumab on Health-Related Quality of Life in Chinese Patients with Moderate-to-Severe Plaque Psoriasis: Results From a Randomized, Double-Blind, Placebo-Controlled Phase 4 Study.	29 Feb 2024	

Trial	Protocol title/ Publication title	Publication citation	PBAC consideration
GUS versus PBO versus ADA			
VOYAGE-1	Phase 3, Multicenter, Randomised, Double-blind, Placebo and Active Comparator-controlled Study Evaluating the Efficacy and Safety of Guselkumab in the Treatment of Subjects With Moderate to Severe Plaque-type Psoriasis Published as: Blauvelt *et al.* (2017). Efficacy and safety of guselkumab, an anti-interleukin-23 monoclonal antibody, compared with adalimumab for the continuous treatment of patients with moderate to severe psoriasis: Results from the phase III, double-blinded, placebo- and active comparator-controlled VOYAGE-1 trial.	Journal of the American Academy of Dermatology. 76 (3) (pp 405-417), 2017. Date of Publication: 01 Mar 2017	Risankizumab November 2023
VOYAGE-2	A Phase 3, Multicenter, Randomised, Double-blind, Placebo and Active Comparator-controlled Study Evaluating the Efficacy and Safety of guselkumab for the Treatment of Subjects With Moderate to Severe Plaque-type Psoriasis With Randomized Withdrawal and Retreatment Published as: Reich *et al.* (2017). Efficacy and safety of guselkumab, an anti-interleukin-23 monoclonal antibody, compared with adalimumab for the treatment of patients with moderate to severe psoriasis with randomized withdrawal and retreatment: Results from the phase III, double-blind, placebo- and active comparator-controlled VOYAGE-2 trial.	Journal of the American Academy of Dermatology. 76 (3) (pp 418-431), 2017. Date of Publication: 01 Mar 2017.	Risankizumab November 2023
VOYAGE-1 and 2	Published as: Reich *et al.* (2020). Maintenance of clinical response and consistent safety profile with up to 3 years of continuous treatment with guselkumab: Results from the VOYAGE-1 and VOYAGE-2 trials.	J Am Acad Dermatol. 2020 Apr;82(4):936-945. doi: 10.1016/j.jaad.2019.11.040. Epub 2019 Dec 4. PMID: 31809827.	Risankizumab November 2023
	Reich *et al.* (2021a). Five-year maintenance of clinical response and health-related quality of life improvements in patients with moderate-to-severe psoriasis treated with guselkumab: results from VOYAGE-1 and VOYAGE-2.	Br J Dermatol. 2021 Dec;185(6):1146-1159. doi: 10.1111/bjd.20568. Epub 2021 Sep 8. PMID: 34105767.	

Trial	Protocol title/ Publication title	Publication citation	PBAC consideration
UST			
UST versus PBO			
PHOENIX-1	C0743T08. A Phase 3, Multicenter, Randomised, Double-blind, placebo-controlled Trial Evaluating the Efficacy and Safety of CNTO 1275 in the Treatment of Subjects With Moderate to Severe Plaque-type Psoriasis. October 9, 2007. Clinical Study Report: Weeks 52, 76 and 264 Published as: Leonardi *et al.* (2008). Efficacy and safety of ustekinumab, a human interleukin-12/23 monoclonal antibody, in patients with psoriasis: 76 week results from a randomised, double-blind, placebo-controlled trial (PHOENIX-1).	Lancet 2008; 371:1675-1684.	Guselkumab March 2018
PHOENIX-2	C0743T09. A Phase 3, Multicenter, Randomised, Double-blind, placebo controlled Trial Evaluating the Efficacy and Safety of CNTO 1275 in the Treatment of Subjects with Moderate to Severe Plaque-type Psoriasis. October 9, 2007. Clinical Study Report: Weeks 28 and 52 and 264 Published as: Papp *et al.* (2008). Efficacy and safety of ustekinumab, a human interleukin-12/23 monoclonal antibody, in patients with psoriasis: 52 week results from a randomised, double-blind, placebo-controlled trial (PHOENIX-2). Langley *et al.* (2010). Ustekinumab significantly improves symptoms of anxiety, depression and skin-related quality of life in patients with moderate-to-severe psoriasis: results from a randomised, double-blind, placebo-controlled phase III trial.	Lancet 2008; 371:1665-1674. J Am Acad Dermatol 2010; 63: 457-65.	Guselkumab March 2018

Trial	Protocol title/ Publication title	Publication citation	PBAC consideration
UST			
UST versus PBO			
PHOENIX-1	C0743T08. A Phase 3, Multicenter, Randomised, Double-blind, placebo-controlled Trial Evaluating the Efficacy and Safety of CNTO 1275 in the Treatment of Subjects With Moderate to Severe Plaque-type Psoriasis. October 9, 2007. Clinical Study Report: Weeks 52, 76 and 264 Published as: Leonardi *et al.* (2008). Efficacy and safety of ustekinumab, a human interleukin-12/23 monoclonal antibody, in patients with psoriasis: 76 week results from a randomised, double-blind, placebo-controlled trial (PHOENIX-1).	Lancet 2008; 371:1675-1684.	Guselkumab March 2018
PHOENIX-2	C0743T09. A Phase 3, Multicenter, Randomised, Double-blind, placebo controlled Trial Evaluating the Efficacy and Safety of CNTO 1275 in the Treatment of Subjects with Moderate to Severe Plaque-type Psoriasis. October 9, 2007. Clinical Study Report: Weeks 28 and 52 and 264 Published as: Papp *et al.* (2008). Efficacy and safety of ustekinumab, a human interleukin-12/23 monoclonal antibody, in patients with psoriasis: 52 week results from a randomised, double-blind, placebo-controlled trial (PHOENIX-2). Langley *et al.* (2010). Ustekinumab significantly improves symptoms of anxiety, depression and skin-related quality of life in patients with moderate-to-severe psoriasis: results from a randomised, double-blind, placebo-controlled phase III trial.	Lancet 2008; 371:1665-1674. J Am Acad Dermatol 2010; 63: 457-65.	Guselkumab March 2018

Trial	Protocol title/ Publication title	Publication citation	PBAC consideration
Risankizumab versus UST versus PBO			
ULTIMMA-1 NCT02684370.	BI 655066 (Risankizumab) Compared to Placebo and Active Comparator (Ustekinumab) in Patients With Moderate to Severe Chronic Plaque Psoriasis Published as: Gordon *et al.* (2018). Efficacy and safety of risankizumab in moderate-to-severe plaque psoriasis (UltIMMa-1 and UltIMMa-2): results from two double-blind, randomised, placebo-controlled and ustekinumab-controlled phase 3 trials.	Lancet. 2018 Aug 25;392(10148):650-661. doi: 10.1016/S0140-6736(18)31713-6. Epub 2018 Aug 7. PMID: 30097359.	Risankizumab November 2023
ULTIMMA-2 NCT02684357.	BI 655066 Versus Placebo & Active Comparator (Ustekinumab) in Patients With Moderate to Severe Chronic Plaque Psoriasis Published as: Gordon *et al.* (2018). Efficacy and safety of risankizumab in moderate-to-severe plaque psoriasis (UltIMMa-1 and UltIMMa-2): results from two double-blind, randomised, placebo-controlled and ustekinumab-controlled phase 3 trials.	Lancet. 2018 Aug 25;392(10148):650-661. doi: 10.1016/S0140-6736(18)31713-6. Epub 2018 Aug 7. PMID: 30097359.	Risankizumab November 2023
Bimekizumab versus UST versus PBO			
Be VIVID NCT03370133.	A Study to Evaluate the Efficacy and Safety of Bimekizumab Compared to Placebo and an Active Comparator in Adult Subjects With Moderate to Severe Chronic Plaque Psoriasis (Be VIVID) Published as: Reich *et al.* (2021b). Bimekizumab versus ustekinumab for the treatment of moderate to severe plaque psoriasis (Be VIVID): efficacy and safety from a 52-week, multicentre, double-blind, active comparator and placebo controlled phase 3 trial.	Lancet. 2021 Feb 6;397(10273):487-498. doi: 10.1016/S0140-6736(21)00125-2. Erratum in: Lancet. 2021 Feb 20;397(10275):670. doi: 10.1016/S0140-6736(21)00387-1. PMID: 33549193.	Risankizumab November 2023
Brodalumab versus UST versus PBO			
AMAGINE-2 NCT01708603.	A Phase 3 Study to Evaluate the Efficacy and Safety of Induction and Maintenance Regimens of Brodalumab Compared With Placebo and Ustekinumab in Subjects With Moderate to Severe Plaque Psoriasis: AMAGINE-2 Published as: Lebwohl *et al.* (2015). Phase 3 studies comparing brodalumab with ustekinumab in psoriasis.	The New England Journal of Medicine 2016; 373:1318-28.	Guselkumab March 2018
AMAGINE-3 NCT01708629.	Study of Efficacy and Safety of Brodalumab Compared With Placebo and Ustekinumab in Moderate to Severe Plaque Psoriasis Subjects (AMAGINE-3) Published as:	The New England Journal of Medicine 2016; 373:1318-28.	Guselkumab March 2018

Trial	Protocol title/ Publication title	Publication citation	PBAC consideration
	Lebwohl *et al.* (2015). Phase 3 studies comparing brodalumab with ustekinumab in psoriasis.		
ETN			
ETN versus PBO			
Gottlieb 2003	Gottlieb *et al.* (2003b). A randomized trial of etanercept as monotherapy for psoriasis.	Arch Dermatol. 2003 Dec;139(12):1627-32; discussion 1632. doi: 10.1001/archderm.139.12.1627. PMID: 14676082.	Risankizumab November 2023
Leonardi 2003	Leonardi *et al.* (2003). Etanercept as monotherapy in patients with psoriasis	N Engl J Med. 2003 Nov 20;349(21):2014-22. doi: 10.1056/NEJMoa030409. PMID.: 14627786.	Risankizumab November 2023
Papp 2005	Papp *et al.* (2005). A global phase III randomized controlled trial of etanercept in psoriasis: safety, efficacy, and effect of dose reduction.	Br J Dermatol. 2005 Jun;152(6):1304-12. doi: 10.1111/j.1365-2133.2005.06688.x. PMID: 15948997.	Risankizumab November 2023
Van de Kerkoff 2008	van de Kerkhof *et al.* (2008). Once weekly administration of etanercept 50 mg is efficacious and well tolerated in patients with moderate-to-severe plaque psoriasis: a randomized controlled trial with open-label extension.	Br J Dermatol. 2008 Nov;159(5):1177-85. doi: 10.1111/j.1365-2133.2008.08771.x. Epub 2008 Jul 31. PMID: 18673365.	Risankizumab November 2023
IFX			
IFX versus PBO			
EXPRESS EudraCT 2004-000447-23.	A Phase 3, Multicenter, Randomized, Double-blind, Placebo-controlled Trial Evaluating the Efficacy and Safety of Infliximab Induction and Maintenance Therapy in Patients with Moderate to Severe Plaque Psoriasis Published as: Reich *et al.* (2005). Infliximab induction and maintenance therapy for moderate-to-severe psoriasis: a phase III, multicentre, double-blind trial.	Lancet. 2005 Oct 15-21;366(9494):1367-74. doi: 10.1016/S0140-6736(05)67566-6. PMID: 16226614.	Secukinumab March 2015
EXPRESS II EudraCT 2004-000553-30.	A Phase 3, Multicenter, Randomized, Double-blind, Placebo-controlled Trial Evaluating the Efficacy and Safety of Infliximab Induction Therapy Followed by Multiple Regimens of Maintenance Infliximab Therapy in Subjects with Plaque-type Psoriasis Published as: Menter *et al.* (2007). A randomized comparison of continuous vs. intermittent infliximab maintenance regimens over 1 year in the treatment of moderate-to-severe plaque psoriasis.	J Am Acad Dermatol. 2007 Jan;56(1):31.e1-15. doi: 10.1016/j.jaad.2006.07.017. Epub 2006 Sep 6. PMID: 17097378.	Secukinumab March 2015
SPIRIT	Gottlieb *et al.* (2004). Infliximab induction therapy for patients with severe plaque-	J Am Acad Dermatol. 2004 Oct;51(4):534-42. doi:	Secukinumab March 2015

Trial	Protocol title/ Publication title	Publication citation	PBAC consideration
	type psoriasis: a randomized, double-blind, placebo-controlled trial. Feldman *et al.* (2005). Infliximab treatment results in significant improvement in the quality of life of patients with severe psoriasis: a double-blind placebo-controlled trial.	10.1016/j.jaad.2004.02.021. PMID: 15389187. Br J Dermatol. 2005 May;152(5):954-60. doi: 10.1111/j.1365-2133.2005.06510.x. PMID: 15888152.	
Torri 2010	Torii and Nakagawa (2010). Infliximab monotherapy in Japanese patients with moderate-to-severe plaque psoriasis and psoriatic arthritis. A randomized, double-blind, placebo-controlled multicenter trial.	J Dermatol Sci. 2010 Jul;59(1):40-9. doi: 10.1016/j.jdermsci.2010.04.014. Epub 2010 May 4. PMID: 20547039.	Secukinumab March 2015
Yang 2012	Yang *et al.* (2012). Infliximab monotherapy for Chinese patients with moderate to severe plaque psoriasis: a randomized, double-blind, placebo-controlled multicenter trial.	Chin Med J (Engl). 2012 Jun;125(11):1845-51. PMID: 22884040.	Secukinumab March 2015
Charudhari 2001	Gottlieb *et al.* (2003a). Infliximab monotherapy provides rapid and sustained benefit for plaque-type psoriasis. Chaudhari *et al.* (2001). Efficacy and safety of infliximab monotherapy for plaque-type psoriasis: a randomised trial.	J Am Acad Dermatol. 2003 Jun;48(6):829-35. doi: 10.1067/mjd.2003.307. PMID: 12789171. Lancet. 2001 Jun 9;357(9271):1842-7. doi: 10.1016/s0140-6736(00)04954-0. PMID: 11410193.	Secukinumab March 2015
Network meta-analyses			
Armstrong 2020	Armstrong *et al.* (2020). Comparison of Biologics and Oral Treatments for Plaque Psoriasis: A Meta-analysis.	JAMA Dermatol. 2020 Mar 1;156(3):258-269. doi: 10.1001/jamadermatol.2019.4029. PMID: 32022825; PMCID: PMC7042876.	Risankizumab November 2023
Armstrong 2022	Armstrong *et al.* (2022a). Efficacy of Bimekizumab and Other Biologics in Moderate to Severe Plaque Psoriasis: A Systematic Literature Review and a Network Meta-Analysis.	Dermatol Ther (Heidelb). 2022 Aug;12(8):1777-1792. doi: 10.1007/s13555-022-00760-8. Epub 2022 Jul 7. PMID: 35798920; PMCID: PMC9357587.	Risankizumab November 2023
Sbidian 2023	Sbidian *et al.* (2023). Systemic pharmacological treatments for chronic plaque psoriasis: a network meta-analysis.	Cochrane Database Syst Rev. 2023 Jul 12;7(7):CD011535. doi: 10.1002/14651858.CD011535.pub6. PMID: 37436070; PMCID: PMC10337265.	Risankizumab November 2023
Armstrong 2022b	Armstrong *et al.* (2022b). Long-Term Benefit-Risk Profiles of Treatments for Moderate-to-Severe Plaque Psoriasis: A Network Meta-Analysis.	Dermatol Ther (Heidelb). 2022 Jan;12(1):167-184. doi: 10.1007/s13555-021-00647-0. Epub 2021 Dec 4. PMID: 34862951; PMCID: PMC8776931.	Risankizumab November 2023
Sawyer 2019	Sawyer *et al.* (2019). Assessing the relative efficacy of interleukin-17 and interleukin-23 targeted treatments for moderate-to-severe plaque psoriasis: A systematic review and network meta-analysis of PASI response.	PLoS One. 2019 Aug 14;14(8):e0220868. doi: 10.1371/journal.pone.0220868. PMID: 31412060; PMCID: PMC6693782.	

Trial	Protocol title/ Publication title	Publication citation	PBAC consideration
Erichsen 2020	Erichsen *et al.* (2020). Biologic therapies targeting the interleukin (IL)-23/IL-17 immune axis for the treatment of moderate-to-severe plaque psoriasis: a systematic review and meta-analysis.	J Eur Acad Dermatol Venereol. 2020 Jan;34(1):30-38. doi: 10.1111/jdv.15879. Epub 2019 Sep 4. PMID: 31419343.	
Xue 2020	Xue *et al.* (2020). Efficacy of Brodalumab for Moderate to Severe Plaque Psoriasis: A Canadian Network Meta-Analysis.	J Cutan Med Surg. 2020 Nov/Dec;24(6):561-572. doi: 10.1177/1203475420933174. Epub 2020 Jun 26. PMID: 32588642.	
Armstrong 2021	Armstrong *et al.* (2021). Comparative Efficacy and Relative Ranking of Biologics and Oral Therapies for Moderate-to-Severe Plaque Psoriasis: A Network Meta-analysis.	Dermatol Ther (Heidelb). 2021 Jun;11(3):885-905. doi: 10.1007/s13555-021-00511-1. Epub 2021 Mar 31. PMID: 33788177; PMCID: PMC8163943.	
Blauvelt 2022	Blauvelt *et al.* (2022). Cumulative Clinical Benefits of Biologics in the Treatment of Patients with Moderate-to-Severe Psoriasis over 1 Year: a Network Meta-Analysis.	Dermatol Ther (Heidelb). 2022 Mar;12(3):727-740. doi: 10.1007/s13555-022-00690-5. Epub 2022 Feb 23. PMID: 35195887; PMCID: PMC8941028.	
Yasmeen 2022	Yasmeen *et al.* (2022). Targeted therapies for patients with moderate-to-severe psoriasis: a systematic review and network meta-analysis of PASI response at 1 year.	J Dermatolog Treat. 2022 Feb;33(1):204-218. doi: 10.1080/09546634.2020.1743811. Epub 2020 Apr 2. PMID: 32202445.	
Armstrong 2023	Armstrong *et al.* (2023). Short-, Mid-, and Long-Term Efficacy of Deucravacitinib Versus Biologics and Non-biologics for Plaque Psoriasis: A Network Meta-Analysis.	Dermatol Ther (Heidelb). 2023 Nov;13(11):2839-2857. doi: 10.1007/s13555-023-01034-7. Epub 2023 Oct 6. PMID: 37801281; PMCID: PMC10613195.	

Source: Table 2.3, pp46-52 of the submission with additional information provided during the evaluation on Feb 3, 2025. Shaded rows indicate trials and publications previously considered by the PBAC. ADA = adalimumab; ETN = etanercept; GUS = guselkumab; IFX = infliximab; PBO = placebo; UST = ustekinumab.

Addendum to the May 2025 PBAC Public Summary Document:

3.01 GUSELKUMAB, Injection 100 mg in 1 mL single use pre-filled pen, Tremfya®, Janssen-Cilag Pty Ltd.

9 Purpose

9.1 The sponsor sought PBAC reconsideration of its advice from the May 2025 meeting recommending the listing of guselkumab 100 mg pre-filled pen (PFP) for the treatment of severe chronic plaque psoriasis (CPP) on a cost-minimisation basis to the least costly alternative therapy of guselkumab (GUS) 100 mg pre-filled syringe (PFS), bimekizumab, ixekizumab, tildrakizumab, risankizumab and secukinumab.

10 Background

10.1 The sponsor has requested listing of GUS 100 mg PFP at the same price as guselkumab 100 mg PFS at the July 2020, March 2021, and May 2025 PBAC meetings.

10.2 At its July 2020 meeting (and reaffirmed at the March 2021 meeting) the PBAC considered that the cost effectiveness of GUS PFP would be acceptable if it were cost-minimised against the lowest cost alternative therapy for chronic plaque psoriasis (CPP). The alternative therapies were noted to be adalimumab, etanercept, infliximab, ixekizumab, risankizumab, secukinumab, tildrakizumab and ustekinumab.

10.3 At its May 2025 meeting, the PBAC considered it reasonable to exclude adalimumab, etanercept, infliximab and ustekinumab as alternative therapies. Whilst the PBAC considered it was reasonable for the GUS PFP to be listed on a cost minimisation basis with the PFS, the PBAC considered the listing should also not be more costly than bimekizumab, ixekizumab, secukinumab, risankizumab, or tildrakizumab.

10.4 In its correspondence of 9 June 2026, the sponsor reiterated its request for GUS PFP to be PBS-listed at the same price as the GUS PFS form.

11 PBAC Outcome

11.1 The PBAC recommended the General Schedule, Authority Required (in writing) listing of GUS 100 mg PFP for the treatment of severe CPP under the same circumstances as the current GUS 100 mg PFS listing. While there remained no evidence to adequately support a claim of improved health outcomes over the previously recommended alternative treatments, the PBAC recalled its previous view that GUS PFP will predominantly replace GUS PFS in practice (*Paragraph* ***Error! Reference source not found.***). The PBAC considered that having access to a PFP may provide an improved

patient experience and usability for some GUS PFS patients and that it may in some instances be clinically more desirable for these patients to be treated with GUS PFP rather than switching to alternative drugs already available in PFP form. Consequently, on this occasion, the PBAC advised that it may be reasonable for GUS PFP to be priced equivalently to GUS PFS.

11.2 At its November 2023 and May 2025 meetings, the PBAC considered it would be informative to review the approach to considering applications for new forms of listed drugs (*Paragraph 7.15, Risankizumab Public Summary Document (PSD), November 2023 PBAC meeting; Paragraph* ***Error! Reference source not found.***). The PBAC again noted a review would be useful to support a consistent approach for the listing of new forms.

11.3 The PBAC advised that, because GUS 100 mg PFP is not expected to provide a substantial and clinically relevant improvement in efficacy, or reduction of toxicity, over GUS 100 mg PFS, nor expected to address a high and urgent unmet clinical need, the criteria prescribed by the *National Health (Pharmaceuticals and Vaccines – Cost Recovery) Regulations 2022* for Pricing Pathway A were not met.

Outcome:
Recommended

12 Context for Decision

The PBAC helps decide whether and, if so, how medicines should be subsidised through the Pharmaceutical Benefits Scheme (PBS) in Australia. It considers applications regarding the listing of medicines on the PBS and provides advice about other matters relating to the operation of the PBS in this context. A PBAC decision in relation to PBS listings does not necessarily represent a final PBAC view about the merits of the medicine or the circumstances in which it should be made available through the PBS. The PBAC welcomes applications containing new information at any time.

13 Sponsor's Comment

The sponsor had no comment.