Public observer slides

Lead team presentation

Certolizumab pegol and secukinumab for treating active psoriatic arthritis following inadequate response to disease modifying anti-rheumatic drugs – Multiple Technology Appraisal

1st Appraisal Committee meeting, 28 September 2016

Cost effectiveness

Committee D

Assessment Group: CRD and CHE Technology Assessment Group, University of York

Lead team: Paula Parvulescu

Companies: UCB (certolizumab pegol) and Novartis (secukinumab)

Key issues for consideration

- Are the following inputs and assumptions in the AG model considered reasonable?
  - After withdrawal, the “rebound” of HAQ and PASI is assumed to be equivalent to the gain
  - The use of the York algorithm to generate utilities when both RAPID-PsA and FUTURE 2 collect EQ-5D data
  - PsARC repsonses and PASI75 assumed to be correlated
  - Change in baseline HAQ score assumed to be conditional on PsARC response status
  - Use of Poole et al. study as a source for disease management costs, given the fact that costs are being derived from comparable patients with PsA (rather than deriving costs from a RA population and adding separate assumptions for PASI costs).

COMPANIES' MODELS

1- UCB, CERTOLIZUMAB
2- NOVARTIS, SECUKINUMAB

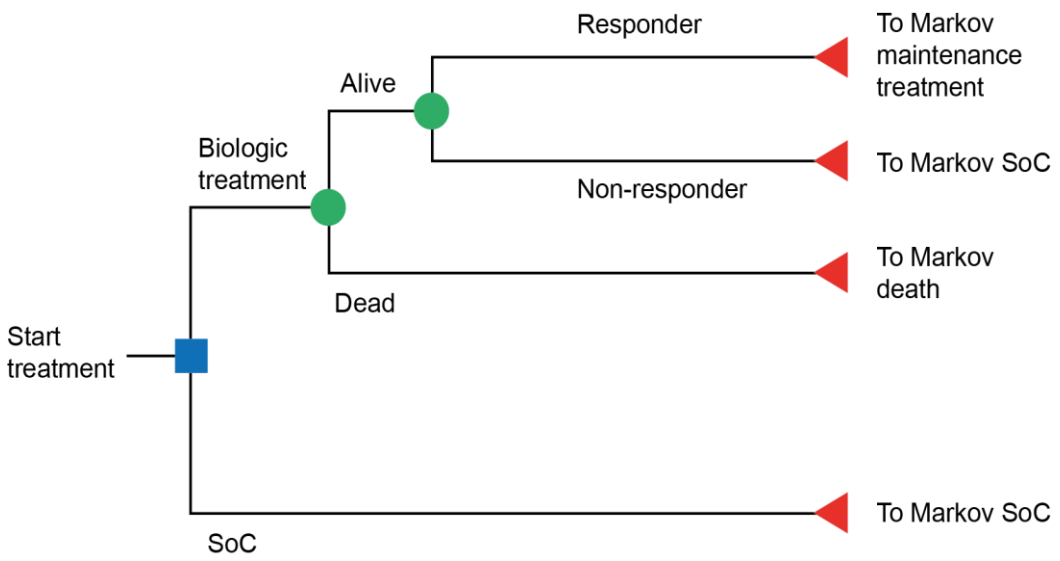
UCB model structure for CZP

- Cohort Markov model with 2 periods
  - short-term, in which the initial response to treatment is determined (12 or 24 weeks depending on the treatment)
  - treatment continuation (up to 36 weeks post initial response)
  - long term period (50 years)
- 3 subgroups: only one prior cDMARD, all biologics-naïve, anti-TNF experienced

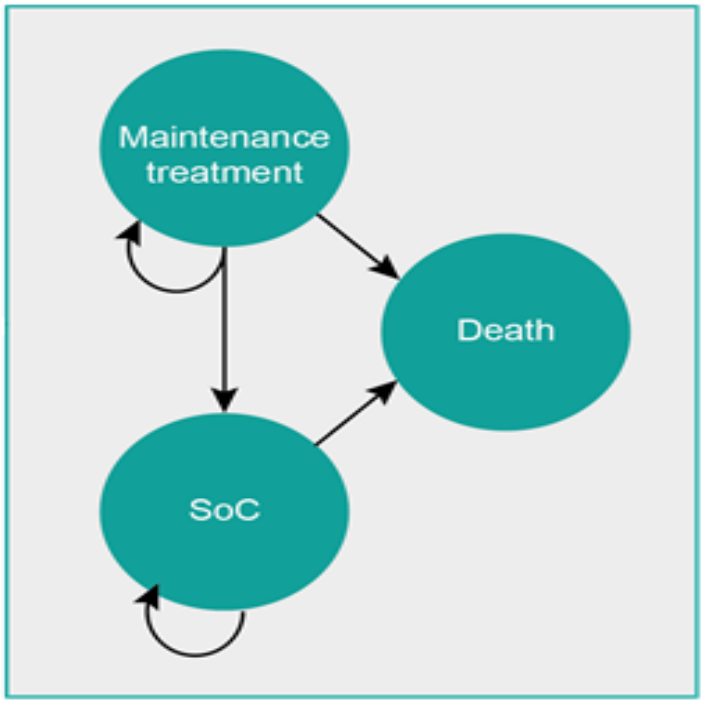
Source: adapted from figure 10 in AG's report

NOVARTIS model structure for SEC

Decision tree structure



Markov model structure (base case)



- Short-term (3-month) decision-tree, leading into a long-term (40 year) Markov cohort model
- 3 subgroups: biologic-naïve (1 prior cDMARD), biologics-naïve (≥2 prior DMARDs), biologic-experienced

Source: adapted from figure 11 in AG's report

Key differences between Novartis and UCB models (I)

	Novartis submission	UCB submission

Struc-ture	• Response defined at 3 months by PsARC and PASI 75
	  • consistent with previous NICE appraisal and BSR/BHPR guidelines and to maximise the data included in the NMA
	• HAQ improvement in responding patients derived from trial data at 12-16 week time period and assumed to remain constant from 3 months
	• For patients that withdraw from treatment, PASI and HAQ both rebounds back to the baseline value in the cycle after stopping active treatment.
	• Withdrawal rate data from FUTURE 2 for 1st year and subsequent year
		• Response defined at 24 weeks by PsARC
		  • based on EULAR (2011) guidelines
		  • 3 months used in sensitivity analysis
		• HAQ improvements in responding patients derived from week 4 trial data for the initial 9 months after which HAQ gain remains constant
		• For patients that withdraw from treatment, PASI rebounds back to the baseline value in the cycle after stopping active treatment, but HAQ rebounds to a worse position.
		• Withdrawal rate applied same as York model for initial 4 years only
		  • lack of longer term evidence reported for withdrawal

Seque ncing	• Not addressed in the base case analysis. Included as a scenario in which patients move to a subsequent “basket” of biologics before switching to SoC. This was applied only in the anti TNF naïve population.	• Full sequence model of biologics followed by the mix of palliation, the sequence differs based on the subpopulation, ranging from one to three lines of treatments. Switching can only occur in the first four years, after which patients remain on treatment indefinitely, accounting for mortality.

Key differences between Novartis and UCB models (II)

	Novartis submission	UCB submission
Pop.	Subpopulation 2 defined in accordance with NICE scope Subpopulation 3 include only biologic experienced patients and therefore do not include people who are contraindicated to biologic therapies	Subpopulation 2 defined as “all-biologic naïve” people Subpopulation 3 include only biologic experienced patients and therefore do not include people who are contraindicated to biologic therapies
Patient inputs	HAQ and PASI score: FUTURE2 use baseline average characteristics assuming a PASI≤10 or PsA patient with concomitant mild to moderate psoriasis • Baseline HAQ = [redacted] • Baseline PASI = [redacted] These baseline values were applied to each of the 3 subpopulations	HAQ and PASI score: RAPID-PsA use baseline average characteristics assuming a PASI>10 or PsA patient with concomitant moderate to severe psoriasis <u>Biologic naïve (1 prior DMARD):</u> • Baseline HAQ = [redacted] • Baseline PASI = [redacted] <u>Biologic naïve (1 or more prior DMARDs)</u> • For anti TNF naïve pop baseline HAQ = 1.29 • Baseline PASI = 11.58 <u>Biologic experienced</u> • Baseline HAQ = 1.37 • Baseline PASI = [redacted]

Key differences between Novartis and UCB models (III)

	Novartis submission	UCB submission
Costs	• Costs associated with HAQ and PASI based on the same sources and assumptions previously used in the York model (Kobelt et al.)	• Costs based on a separate study by Poole et al • PsA population included was more appropriate than deriving costs based on a RA population and employing separate assumptions for PASI costs.
Utilities	• Algorithm derived from patient-level data of FUTURE2 in which utility is a function of HAQ, PASI, age, gender and anti-TNF response state.	• Algorithm derived from patient-level data of RAPID-PsA in which utility is a function of HAQ and PASI

Abbreviations: BHRP/BSR, British Society for Rheumatology/British Health Professionals in Rheumatology; DMARD, disease-modifying antirheumatic drugs; HAQ, Health Assessment Questionnaire; NMA, network meta-analysis; PASI, Psoriasis Area Severity Index ; PsARC, psoriatic arthritis response criteria; SoC, standard of care; TNF, tumor necrosis factor

Source: adapted from table 65 in AG's report

Base case result for subpopulation 1 (list prices)

Subpopulation 1 (Novartis and UCB): biologic naïve - 1 prior DMARD

UCB submission

Treatment	Total costs (£)	Total QALYs	Incremental costs (£)	Incremental QALYs	ICER (£)
cDMARDs	[redacted]	[redacted]	[redacted]	[redacted]	-
CZP	[redacted]	[redacted]	[redacted]	[redacted]	£23,666

Novartis submission

Treatment	Total costs (£)	Total QALYs	Incremental costs (£)	Incremental QALYs	ICER (£)
SoC*	[redacted]	[redacted]	[redacted]	[redacted]	-
SEC 150	[redacted]	[redacted]	[redacted]	[redacted]	£12,189

*SoC is defined as 100% use of methotrexate, dose 25mg per week

Source: adapted from tables 72 and 73 in AG's report

Base case result for subpopulation 2 (list prices)

Subpopulation 2 (UCB): 1 or more prior DMARDs

UCB submission

Treatment	Total costs (£)	Total QALYs	Incremental costs vs next least costly interventions	Incremental QALYs vs next least costly interventions	ICER vs next least costly interventions (£)
CZP	[redacted]	[redacted]	[redacted]	[redacted]	-
ADA	[redacted]	[redacted]	[redacted]	[redacted]	Dominated
GOL	[redacted]	[redacted]	[redacted]	[redacted]	Dominated
ETA	[redacted]	[redacted]	[redacted]	[redacted]	Dominated
SEC	[redacted]	[redacted]	[redacted]	[redacted]	Dominated
INF	[redacted]	[redacted]	[redacted]	[redacted]	Dominated

Source: adapted from tables 74 in AG's report

Base case result for subpopulation 2 (list prices)

Subpopulation 2 (Novartis): 2 or more prior DMARDs

Novartis submission

Treatment	Total costs (£)	Total QALYs	Incremental costs vs next least costly interventions	Incremental QALYs vs next least costly interventions	ICER vs next least costly interventions	ICER vs. next least costly intervention
SoC	[redacted]	[redacted]	[redacted]	[redacted]	-	-
SEC 150	[redacted]	[redacted]	[redacted]	[redacted]	£10,549	£10,549
CZP	[redacted]	[redacted]	[redacted]	[redacted]	£28,432	Dominated by SEC
ETN	[redacted]	[redacted]	[redacted]	[redacted]	£31,280	Dominated by SEC
GOL	[redacted]	[redacted]	[redacted]	[redacted]	£33,802	Dominated by SEC
ETN	[redacted]	[redacted]	[redacted]	[redacted]	£32,706	Dominated by SEC
INF	[redacted]	[redacted]	[redacted]	[redacted]	£53,223	£220,558

Source: adapted from tables 75 in AG's report

Base case result for subpopulation 3 (list prices)

Subpopulation 3 (Novartis and UCB): biologic experienced

UCB submission

Treatment	Total costs(£)	Total QALYs	Incremental costs (£)	Incremental QALYs	ICER (£)
Mix*	[redacted]	[redacted]	[redacted]	[redacted]	-
CZP	[redacted]	[redacted]	[redacted]	[redacted]	£8,894
UST	[redacted]	[redacted]	[redacted]	[redacted]	Dominated by CZP
SEC 300mg	[redacted]	[redacted]	[redacted]	[redacted]	Dominated by CZP

*Mix is a mixture of cDMARDs and palliative care

Novartis submission

Treatment	Total costs(£)	Total QALYs	Incremental costs vs SoC(£)	Incremental QALYs vs SoC	ICER vs. SoC (£)	ICER vs. next least costly intervention
SoC	[redacted]	[redacted]	[redacted]	[redacted]	-	
CZP	[redacted]	[redacted]	[redacted]	[redacted]	£29,538	Extendedly dominated
UST	[redacted]	[redacted]	[redacted]	[redacted]	£37,228	Extendedly dominated
SEC 300	[redacted]	[redacted]	[redacted]	[redacted]	£27,562	£27,562

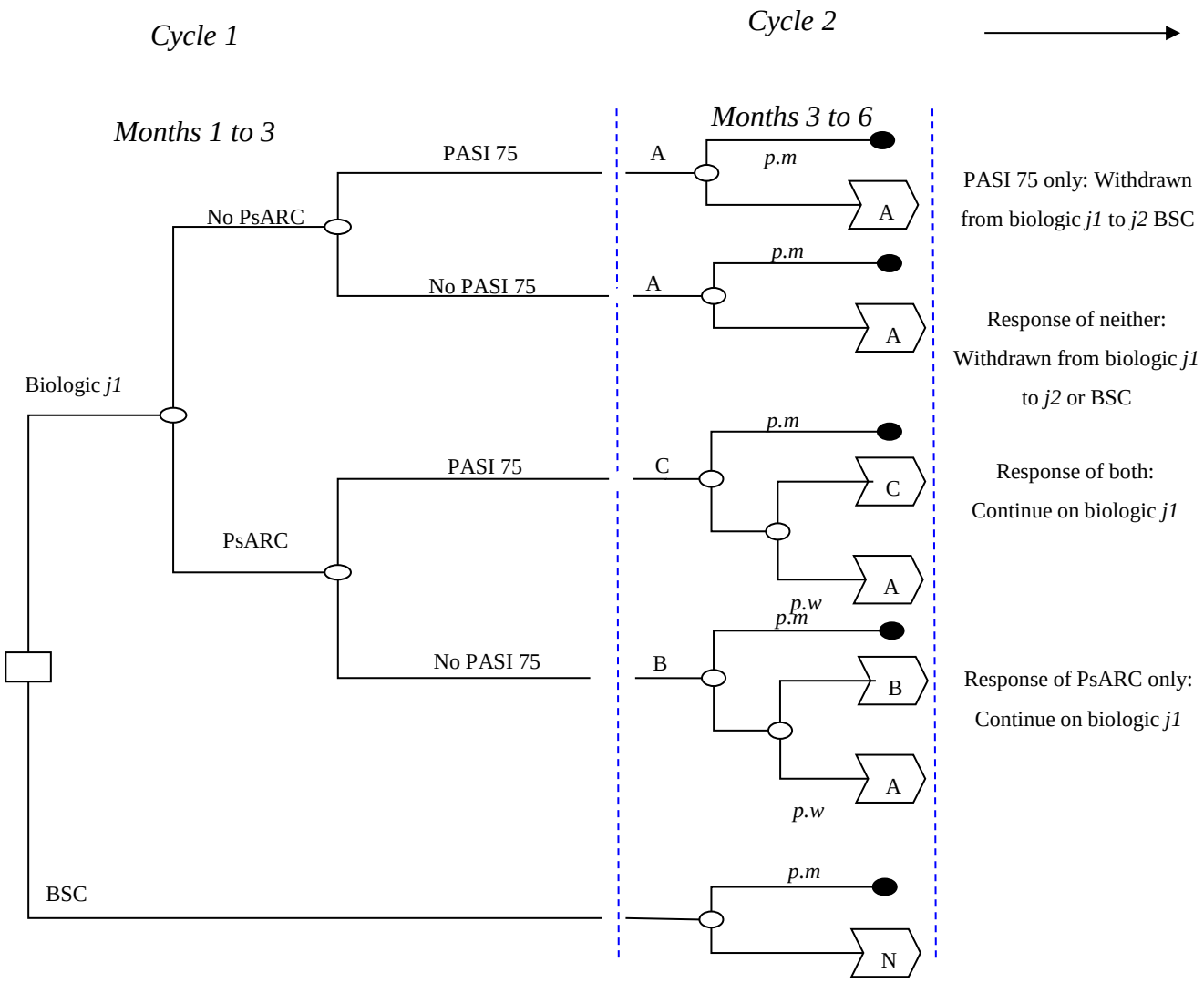
Source: adapted from tables 76 and 77 in AG's report

AG's critique of UCB and Novartis models

- Differences in approaches and data sources
- No comparison possible between subpopulations
- Lack of consistency with previous NICE technology appraisals for Novartis results (subpopulations 1 and 2); UCB's results for subpopulation 3 are consistent with previous NICE technology appraisals
- Contradictory findings reported for several of the subpopulations in terms of the relative cost-effectiveness of SEC and CZP
- Neither company incorporated the full range of interventions and comparators as stated in the NICE final scope across all three subpopulations
- Uncertainty regarding both the cost-effectiveness of SEC and CZP in each subpopulation and potential implications for the NHS

ASSESSMENT GROUP (AG) MODEL

AG model structure



- Markov cohort model with 3-monthly cycles
- Costs and HRQoL differ by state
- lifetime horizon (40-years)
- NHS and PSS perspective
- Costs and outcomes discounted at an annual rate of 3.5%
- BSC is a mix of cDMARDs and palliative care

Key: A – Withdrawn from biologic *j1* to *j2* or BSC. B – Continue on biologic *j1* with response of arthritis but not of psoriasis. C – Continue on biologic *j* with response of both arthritis and psoriasis. N – No treatment.
P.m – Probability of mortality (any cause) P.w – Probability of withdrawal from biologic after first 3 months.

Source: adapted from figure 15 in AG report

AG model description

Update of previous York model (TA199) - structure similar but a few key differences:

- inclusion of subsequent treatments following primary lack of response or secondary failure
- models all subpopulations specified in the NICE scope, including patients contraindicated to existing biologic treatments (subpopulation 4)
- subpopulation 4 patient population:
  - exclusion of CZP because it was assumed that patients that are contraindicated to other TNF-alpha inhibitors are also contraindicated to CZP
  - SEC, UST, BSC included as comparators
  - patients likely to be a combination of biologic naïve and biologic experienced who have experienced a significant AEs; however because of lack of effectiveness data specific to these patients, analysis was undertaken using biologic naïve population
- takes into account heterogeneity in terms of baseline PASI with results for 3 subgroups within each subpopulation:
  - PsA without concomitant psoriasis
  - PsA with concomitant mild to moderate psoriasis (≥3% of BSA and PASI ≤10)
  - PsA with concomitant moderate to severe psoriasis (≥3% of BSA and PASI >10)

Source: adapted from section 7.2 and 7.3 p. 197 in AG's report

Model assumptions

- Response defined as PsARC response, only PsARC response used to determine continuation on treatment
- Correlation between PsARC response and HAQ score
- Adjustment for placebo response (same methods employed in the previous York model for TA199)
- Probability of withdrawal due to AEs or loss of efficacy are assumed to be independent of HAQ and PASI scores, and constant over time (0.165 per year)
  - After withdrawal, the “rebound” of HAQ and PASI is assumed to be equivalent to the gain
- Effectiveness used in the economic model utilises 2 combinations of results (independent analysis and meta-regression) of PsARC response, HAQ conditional on PsARC response and PASI response. Means (instead of medians) are used in order to inform a decision regarding the expected cost-effectiveness of competing treatment (see section 7.2.6.4 p.210 in AG’s report)

Source: adapted from section 7.2.2 p. 199 in AG’s report

Health related Quality of life (HRQoL)

- HRQoL measured as a function of HAQ and PASI
- It is assumed that HAQ and PASI capture all the relevant information regarding a patient's quality of life (based on previous York model for TA 199), therefore these 2 functions, at each cycle of the model, must be mapped onto the utility scores associated with particular HAQ and PASI combinations in order to generate an estimate of the lifetime QALYs for each of the treatments
- No published sources offered a mapping function that would allow the disease specific measure (HAQ and PASI) or be mapped onto a utility score. Therefore the existing York algorithm was used in the model
- Utility changes based on the York algorithm
  - Applied to all subpopulations, subgroups and treatments
  - No separate scenarios as very similar to the previous York model

$$Expected\ Utility = 0.897 - 0.298 * HAQ - 0.004 * PASI$$

Source: adapted from section 7.2.8 p. 214 in AG's report

Resources & costs (list prices)

Agent	Annual costs							
	1st cycle (13 weeks)				Subsequent cycles			
	Acquisition *(biosimilar)*	Administration	Monitoring	Total	Acquisition *(biosimilar)*	Administration	Monitoring	Total
ETN (BEN)	£2,332 *(2,139)*	£43	£166	£2,541	£2,332 *(2,139)*	0	£4	£2,336
INF (REM)	£7,147 *(6,432)*	£574	£166	£7,887	£3,395 *(3,056)*	£273	£4	£3,672
ADA	£2,297	£43	£166	£2,506	£2,297	0	£4	£2,301
GOL	£2,289	£43	£166	£2,498	£2,289	0	£4	£2,293
CZP	£3,575*	£43	£166	£3,784	£2,145*	0	£4	£2,149
SEC 150	£4,266	£43	£166	£4,475	£1,828	0	£4	£1,832
SEC 300	£8,532	£43	£166	£8,741	£3,656	0	£4	£3,661
UST	£4,294	£43	£166	£4,503	£2,147	0	£4	£2,151
Sources	MIMS BNF (MTX)	PSSRU	PSSRU		MIMS BNF (MTX)	PSSRU	PSSRU	

*Acquisition cost include MTX alongside CZP

Source: adapted from table 83 in AG report

Disease management costs

- Previous NICE TA372 (apremilast) identified HAQ costs and/or PASI based on Poole et al. (only source of cost specific to PsA)
  - used in scenario analyses
- As base case, the final HAQ costs were based on the same function used in the previous York model
  - HAQ scores address only the arthritis component of PsA, therefore additional costs were required to capture the psoriasis element of the disease

Description	Without psoriasis	Mild to moderate	Moderate to severe
Baseline PASI	0.0	7.3	12.5
Costs of uncontrolled psoriasis (£)	0.0	223	638
Costs of controlled psoriasis (PASI75 response)	0.0	18	18
Source		NHS unit costs of phototherapy and a UK RCT	Dutch RCT adjusted to UK price levels (Hartman et al)

Source: adapted from table 83 in AG report

Application of price discounts

- Patient Access Schemes (PAS)
  - CZP: complex scheme proposed
  - SEC: simple discount PAS
- Infliximab is available to the NHS at confidential contract prices agreed with the Commercial Medicines Unit (CMU)
- PASs have been incorporated in the base analyses for the comparators ustekinumab and golimumab
- Because the PAS and CMU contract prices are confidential, analyses presented use the list prices for CZP, SEC and infliximab
  - *Note: these results are not reflective of the true cost effectiveness of CZP and SEC*
- Analyses incorporating confidential prices are presented in a confidential appendix for committee for discussion in part 2

Independent analysis results (list price) – ICER analysis

Subpopulation 1: biologic naïve - 1 prior DMARD

	Cost	QALY	Incremental Cost	Incremental QALY	ICER vs next-best option	Pairwise ICER vs BSC
Moderate – severe psoriasis						
BSC	£95,965	5.312	-	-	-	-
CZP	£159,951	8.377	£63,987	3.066	£20,870	£20,870
SEC 300*	£179,692	8.524	£19,741	0.146	£134,783	£26,064
Mild – moderate psoriasis						
BSC	£67,000	5.676	-	-	-	-
CZP	£135,946	8.667	-	-	D	£23,052
SEC 150*	£132,500	8.685	£65,500	3.009	£21,772	£21,772
No concomitant psoriasis						
BSC	£51,436	6.188	-	-	-	-
SEC 150*	£120,303	9.067	£68,866	2.878	£23,928	£23,928
CZP	£122,832	9.074	£2,529	0.007	£346,785	£24,744

* SEC 150 is licensed for no concomitant and mild to moderate psoriasis, SEC 300 is licensed for moderate to severe psoriasis

Source: adapted from tables 90-92 in AG's report

Summary of differences between independent and meta regression approaches (list price)

Subpopulation 1: biologic naïve - 1 prior DMARD

	ICERs vs BSC			Optimal treatment (£20,000)	Optimal treatment (£30,000)
	CZP	SEC 150*	SEC 300*		
Moderate – severe psoriasis					
Independent analysis	£20,870	-	£26,064	BSC	CZP
Meta regression	£19,908	-	£27,033	CZP	CZP
Mild – moderate psoriasis					
Independent analysis	£23,052	£21,772	-	BSC	SEC 150MG
Meta regression	£22,446	£21,287	-	BSC	SEC 150MG
No concomitant psoriasis					
Independent analysis	£24,744	£23,928	-	BSC	SEC 150MG
Meta regression	£24,388	£23,408	-	BSC	SEC 150MG

* SEC 150 is licensed for no concomitant and mild to moderate psoriasis, SEC 300 is licensed for moderate to severe psoriasis

Source: adapted from table 93 in AG's report

Independent analysis results (list price) – ICER analysis

Subpopulation 2: biologic naïve - 2 prior DMARDs

	Cost	QALY	Incremental Cost	Incremental QALY	ICER vs next-best option	Pairwise ICER vs BSC
Moderate – severe psoriasis						
BSC	£95,965	5.312	-	-	-	-
CZP	£137,240	7.226	-	-	ED	£21,564
SEC 300mg	£157,086	7.379	-	-	D	£29,569
ADA	£138,109	7.411	£42,144	2.100	£20,074	£20,074
GOL	£142,850	7.637	£4,741	0.226	£20,976	£20,161
ETN	£144,585	7.719	£1,735	0.082	£21,215	£20,197
INF	£167,126	7.890	£22,541	0.171	£131,716	£27,599

* SEC 150 is licensed for no concomitant and mild to moderate psoriasis, SEC 300 is licensed for moderate to severe psoriasis

D = dominated, ED = extendedly dominated

Source: adapted from tables 94 in AG's report

Independent analysis results (list price) – ICER analysis

Subpopulation 2: biologic naïve - 2 prior DMARDs

	Cost	QALY	Incremental Cost	Incremental QALY	ICER vs next-best option	Pairwise ICER vs BSC
Mild – moderate psoriasis						
BSC	£67,000	5.676	-	-	-	-
CZP	£111,856	7.537			D	£24,103
SEC 150mg	£108,508	7.560	£41,508	1.884	£22,032	£22,032
ADA	£114,039	7.708			ED	£23,149
GOL	£119,624	7.923			D	£23,419
ETN	£119,326	8.025	£10,818	0.465	£23,256	£22,274
INF	£145,569	8.161	£26,243	0.136	£193,063	£31,616

* SEC 150 is licensed for no concomitant and mild to moderate psoriasis, SEC 300 is licensed for moderate to severe psoriasis

D = dominated, ED = extendedly dominated

Source: adapted from tables 95 in AG's report

Independent analysis results (list price) – ICER analysis

Subpopulation 2: biologic naïve - 2 prior DMARDs

	Cost	QALY	Incremental Cost	Incremental QALY	ICER vs next-best option	Pairwise ICER vs BSC
No concomitant psoriasis						
BSC	£51,436	6.188	-	-	-	-
CZP	£95,632	7.972	-	-	ED	£24,773
SEC 150mg	£98,060	7.974	-	-	ED	£26,105
ADA	£100,893	8.125	-	-	ED	£25,532
GOL	£106,895	8.325	-	-	D	£25,951
ETN	£105,592	8.456	£54,156	2.268	£23,883	£23,883
INF	£133,664	8.543	£28,071	0.087	£324,502	£34,930

* SEC 150 is licensed for no concomitant and mild to moderate psoriasis, SEC 300 is licensed for moderate to severe psoriasis

D = dominated, ED = extendedly dominated

Source: adapted from tables 96 in AG's report

Summary of differences between independent and meta regression approaches (list price)

Subpopulation 2: biologic naïve - 2 prior DMARDs

	ICERs vs BSC							Optimal treatment (£20,000)	Optimal treatment (£30,000)
	CZP	SEC 150*	SEC 300*	ADA	GOL	ETN	INF		
Moderate – severe psoriasis									
Independent analysis	£21,564	-	£29,569	£20,074	£20,074	£20,197	£27,599	BSC	ETN
Meta regression	£19,923	-	£30,456	£20,092	£20,767	£20,552	£29,138	CZP	CZP
Mild – moderate psoriasis									
Independent analysis	£24,103	£22,032	-	£23,149	£23,419	£22,274	£31,616	BSC	ETN
Meta regression	£22,939	£21,177	-	£23,130	£23,408	£22,750	£32,703	BSC	SEC 150
No concomitant psoriasis									
Independent analysis	£26,105	£24,773	-	£25,532	£25,951	£23,883	£34,930	BSC	ETN
Meta regression	£25,275	£23,768	-	£25,485	£25,475	£24,460	£35,689	BSC	SEC 150

* SEC 150 is licensed for no concomitant psoriasis and mild to moderate psoriasis, SEC 300 is licensed for moderate to severe psoriasis

Using biosimilar list prices for ETN and INF decrease the ICERs for ETN vs. BSC and INF vs. ETN and ETN vs. next best alternative (BSC) in the moderate-severe subgroup (falls below £20,000), therefore using the biosimilar list prices for ETN switches the optimal treatments from BSC to ETN.

Source: adapted from table 97 in AG's report

Independent analysis results (list price)

Subpopulation 3: biologic experienced

	Cost	QALY	Incremental Cost	Incremental QALY	ICER vs next-best option	Pairwise ICER vs BSC
Moderate – severe psoriasis						
BSC	£95,965	5.312	-	-	-	-
UST	£118,127	6.334	£22,162	1.022	£21,684	£21,685
SEC 300	£143,534	6.632	£25,407	0.299	£85,013	£36,013
Mild – moderate psoriasis						
BSC	£67,000	5.676	-	-	-	-
UST	£91,246	6.666	£24,246	0.989	£24,510	£24,510
SEC 300	£118,564	6.945	£27,318	0.280	£97,713	£40,639
No concomitant psoriasis						
BSC	£51,436	6.188	-	-	-	-
UST	£76,712	7.132	£25,275	0.943	£26,797	£26,797
SEC 300	£104,973	7.384	£28,261	0.252	£111,927	£44,774

Source: adapted from tables 98-100 in AG's report

Independent analysis results (list price)

Subpopulation 4: patients contraindicated to existing TNF-alpha inhibitors

- Analysis undertaken using the naïve populations from the SEC and UST trials
- Exclusion of CZP because it was assumed that patients that are contraindicated to other TNF-alpha inhibitors are also contraindicated to CZP

	Cost	QALY	Incremental Cost	Incremental QALY	ICER vs next-best option	Pairwise ICER vs BSC
Moderate – severe psoriasis						
BSC	£95,965	5.312	-	-	-	-
UST	£115,216	6.276	£19,252	0.964	£19,969	£19,969
SEC 300	£137,936	6.530	£22,720	0.254	£89,302	£34,445
Mild – moderate psoriasis						
BSC	£67,000	5.676	-	-	-	-
UST	£88,280	6.613	D		-	£22,708
SEC 150	£87,559	6.739	£20,558	1.063	£19,349	£19,349
No concomitant psoriasis						
BSC	£51,436	6.188	-	-	-	-
UST	£73,717	7.088	-	-	ED	£24,781
SEC 150	£73,798	7.190	£22,362	1.001	£22,334	£22,334

D = dominated, ED = extendedly dominated

Source: adapted from table 101-103 in AG's report

Base case results using biosimilar list prices (ETN & INF)

- This analysis only applies to subpopulation 2, for which comparators include ETN and INF
- Overall, the ICERs for ETN vs. BSC, and for INF vs. ETN are reduced
  - moderate-severe subgroup: ICER < £20,000 for ETN vs. its next best alternative (BSC), therefore at this threshold, using the biosimilar list prices for ETN, the optimal treatments switches from BSC to ETN
  - mild-moderate and no concomitant psoriasis subgroups: optimal treatments remains unchanged.
- The optimal treatment was not sensitive to the use of biosimilar list prices for ETN and INF

Source: adapted from section 7.3.2 p.240 in AG's report

Innovation

- **Secukinumab:**
  - Novel mechanism of action (selective IL-17A inhibitor); offers patients an alternative and more targeted mode of action to other biologics currently. Expands armamentarium of treatments for clinicians (company and a patient organisation)
  - Convenience of administration with the self-administration. Device has a hidden needle; more amenable for patients with needle-phobias. Considerably lower frequency of injection (monthly) than etanercept (twice weekly), adalimumab (fortnightly) and CZP (fortnightly) (company)
- **Certolizumab pegol:**
  - Structure of CZP was innovative – only Fragment crystallisable-free, PEGylated Fab' fragment TNF inhibitor currently available for the treatment of PsA (company)
  - Some benefits linked to administration with regards to flexible dosing schedule and self-administration (company)
  - CZP provides a rapid response with regards to improving the signs and the symptoms of the disease
  - Some health benefits not captured in the utility assessment: productivity benefit with greater and continued improvements over time (work, household, social, family, leisure activities) (company)

Source: adapted from sections 4.84 (Novartis) and 2.5 (UCB) of companies' submissions

Equalities issues

- No equalities issues were raised

Consultation comments on AG's report (1)

- NICE received 5 responses during consultation:
  - UCB (manufacturer of certolizumab pegol)
  - Novartis (manufacturer of secukinumab)
  - Celgene
  - Healthcare Improvement Scotland
  - Merck, Sharp & Dohme (MSD)

Consultation comments on AG's report (2)

- UCB
  - Wrong CZP treatment cost (overestimation)
    - *AG thinks that the costs for CZP have actually been slightly underestimated rather than overestimated, which slightly increase the ICERs although conclusions are unchanged*
  - Disease management costs data should be derived from the Poole et al. study
    - *AG used Rodgers et al. study to ensure consistency with previous NICE appraisal; there were several concerns with Poole et al. study. Poole et al. was used in scenario analysis*
- MSD
  - Wrong infliximab treatment cost
    - *AG utilise a weight-base dose for infliximab. The weight distribution is obtained from RAPID-PsA trials. While there is a slight difference in the number of administrations per year between the AG and those from MSD, this does not affect the conclusions of the analysis.*
  - Wrong golimumab treatment cost
    - *AG: the treatment cost includes both the acquisition cost but also the administration for initiation and monitoring costs.*