Summary

1. On the 24th March 2009 the National Centre for Pharmacoeconomics received a request from the HSE Corporate Pharmaceutical Unit (CPU) to conduct a pharmacoeconomic assessment of the product ustekinumab (Stelara). Following a scoping meeting on the 27th May 2009 the cost-effectiveness of ustekinumab for the treatment of moderate to severe psoriasis was reviewed following receipt of a reimbursement dossier dated 27th July 2009 from Janssen-Cilag.

2. Ustekinumab is a fully human monoclonal antibody that inhibits the activity of human interleukin (IL) 12 and 23 by inhibiting binding to the IL-12Rb1 receptor protein expressed on the surface of immune cells. The product has marketing authorisation for the treatment of moderate to severe plaque psoriasis in adults who have not responded to, or who have a contraindication to, or are intolerant of other systemic therapies including ciclosporin, methotrexate and PUVA.

3. The submitted economic evaluation assessed the cost-effectiveness of ustekinumab as compared to three comparators i.e. etanercept at two doses (25mg and 50mg both twice weekly), adalimumab 40mg every other week and infliximab given in the accepted regimen. The selection of comparators was based on current guidelines for use of biologicals for the treatment of psoriasis and accepted clinical practice.

4. The effectiveness of ustekinumab was derived from three phase III trials including Phoenix 1 & 2 and the ACCEPT trial. Efficacy inputs for the base case in the economic model were derived from a weight based analysis of the ustekinumab cohort in all three-phase III trials. Efficacy data for the comparators were obtained from a systemic review of the literature.

5. A probabilistic decision analytic model was used to determine the cost-effectiveness of ustekinumab relative to stated comparators. Key drivers of the model included probabilities of PASI 75 response and the assumption that patients who discontinued therapy following treatment required hospitalisation estimated at least once in the maintenance phase. The model had a 10-year time horizon and the perspective was that of the HSE. The review group highlighted

issues relating to utility data particularly the mapping process which may introduce uncertainty in addition to the choice of utility instrument.

6. From the HSE perspective ustekinumab (weighted average, weight based) was dominant versus all comparators with the exception of infliximab. The model was sensitive to the price of ustekinumab e.g. a 15% increase in price resulted in incremental cost effectiveness ratio's of €201,274/QALY, €219,678/QALY and €401,329/QALY versus adalimumab, etanercept 25mg and etanercept 50mg regimens. The probability of ustekinumab being cost-effective at the €45,000/QALY threshold was approximately 85%. This fell to 20% at the €20,000/QALY threshold level. The budget impact varied with scenarios presented but ranged between €158,363 in year 1 to over €2.5 million in year 5.

7. Based on the findings of the economic evaluation and revised submissions requested by the NCPE review group we consider ustekinumab cost effective, versus the chosen comparators for the treatment of moderate to severe psoriasis in the Irish healthcare setting.