A psoriasis-specific model to support decision making in practice: UK experience
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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
The study aimed to develop a model to compare the cost and effectiveness outcomes of topical treatment for patients with moderately severe psoriasis in the UK. The authors concluded that they had developed a model that allowed collaboration between health care professionals to optimise treatment of psoriasis. The authors’ conclusions reflect the scope of the analysis.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
The study aimed to develop a model to compare the cost and effectiveness outcomes of topical treatment for patients with moderately severe psoriasis in the UK.

Interventions
Five topical treatment pathways were evaluated. The reference pathway used first line calcipotriol (twice daily), followed by potent steroid second-line treatment. Treatment pathway one was a two-compound formulation of calcipotriol plus betamethasone dipropionate for first-line and second-line treatment. Treatment pathway two was calcipotriol as first-line treatment followed by two-compound formulation as second-line treatment. Treatment pathway three was a combination of calcipotriol in the morning with potent steroid in the evening or vice versa as first-line and second-line treatment. Treatment pathway four was tacalcitol as first-line treatment followed by potent steroid second-line treatment. All pathways converged once third-line treatment in secondary care was instigated, with phototherapy, ciclosporin and methotrexate as third-line and fourth line treatment, and biologics as fifth line treatment.

Location/setting
UK/Primary care

Methods
Analytical approach:
A state-transition model was used to synthesise data based on a previously published model and using expert opinion and the published literature. The model presented was the reference case, but the model was constructed to allow several parameters to be adjusted to reflect the decision-makers setting. The time horizon of the analysis presented was two years.

Effectiveness data:
The clinical effectiveness estimates used were based on a previously published economic model, plus estimates from published literature and expert opinion. The main clinical estimates included the prevalence of psoriasis, prevalence of plaque psoriasis, and probabilities of response for all first-line and second-line treatments (response was defined as 75% reduction or over in Psoriasis Area and Severity Index, PASI 75).

Monetary benefit and utility valuations:
The source of utility valuation was a single published study. A utility gain of 0.09 was assigned to all patients with PASI 74 response and 0.07 gain was assigned to patients who did not respond. Utility gains were the same across all treatments.

Measure of benefit:
The authors stated that quality-adjusted life-years (QALYs) were calculated.

Cost data:
The cost categories included: the primary care costs of general practitioner consultations; prescriptions of topical treatments; secondary care costs of referrals to outpatient services; and the use of phototherapy, oral systemic or biological drugs. Costs were assigned to each health state of the model. These were based on the prescription drug database and drug prescribing guide (MIMS), a health technology assessment, a published study, the Personal Social Services Research Unit (PSSRU), and Hospital Episode Statistics and UK Department of Health reference costs. Costs were discounted at a rate of 3.5% per year.

Analysis of uncertainty:
The authors reported the potential to conduct sensitivity analyses of results using their model by varying scenarios.

Results
The reference pathway (of first line calcipotriol followed by second-line potent steroid treatment) was estimated to cost £905,757,693 over two years in the UK population.

In comparison, treatment pathway one (two-compound formulation for first- and second-line treatment) was estimated to save £126,080,098; treatment pathway two (calcipotriol first-line and two-compound formulation second-line treatment) was estimated to save £25,378,701; treatment pathway three (combination of calcipotriol in the morning with potent steroid in the evening) was estimated to cost an additional £144,955,376; and treatment pathway four (tacalcitol as first-line and potent steroid as second-line treatment) cost an additional £30,605,830.

Effectiveness results were not reported, but the authors reported that the reference pathway and treatment pathway one (two-compound formulation) were dominant, as they were less costly and more effective.

Authors’ conclusions
The authors concluded that they had developed a model that allowed collaboration between health care professionals to optimise treatment of psoriasis in the UK.

CRD commentary
Interventions:
The level of reporting of interventions was good, supported by diagrams to communicate treatment pathways. It appeared that the relevant interventions were included. The authors suggested that the model was adaptable and other pathways (if viable) could be included.

Effectiveness/benefits:
The level of reporting of the effectiveness of benefits data was generally inadequate, so it was unclear whether the best sources of information were included in the model. The methods used to identify, select and pool relevant studies were not described by the authors, so it was unclear whether the best available evidence was used. The effectiveness data were presented in a table. The measurement of utilities was based on a published study and attributed utilities to a response score. The study population and methods used to estimate utilities were not reported, so it was unclear what methodology supported the calculation of QALYs. However, the aim of the authors was to develop an interactive model and the analysis presented may have been mainly for illustrative purposes.

Costs:
The authors did not specify a study perspective, although it appeared that the perspective of a local NHS commissioner was taken; the main costs relevant to this perspective were included. The reporting of the cost data was generally inadequate. The sources of resource use and prices were listed but not fully described. The authors did not report the price year or whether the costs had been adjusted. However, authors’ aim should be considered when critically reviewing the outcomes.

Analysis and results:
The reporting of the model structure was good, supported by tables and diagrams. In the analysis presented, the use of an incremental approach was appropriate. However, the level of reporting of inputs and results was less transparent and
compromised the generalisability and assessment of results. However, it was not the aim of the authors to present results, more to present an interactive model.

Concluding remarks:
The authors’ conclusions reflect the scope of the analysis in that they suggest that their interactive model may help in identifying optimal treatment pathways in the UK.

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