Cost-effectiveness of HIV nonoccupational post-exposure prophylaxis in Australia
Guinot D, Ho MT, Poynten IM, McAllister J, Pierce A, Pell C, Grulich AE

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 objective was to assess the cost-effectiveness of non-occupational post-exposure prophylaxis (NPEP) against human immunodeficiency virus (HIV). The authors concluded that NPEP was not cost-effective at a willingness-to-pay of 50,000 Australian dollars per quality-adjusted life-year gained. The study had some methodological limitations, but the conclusion reached by the authors seems to be appropriate.

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

Study objective
The objective was to assess the cost-effectiveness of non-occupational post-exposure prophylaxis (NPEP) against human immunodeficiency virus (HIV).

Interventions
NPEP was compared with no prophylaxis.

Location/setting
Australia/primary, secondary, and tertiary care.

Methods
Analytical approach:
The analysis was mainly based on data from a single study with a six-month time horizon. The authors reported that a health care provider perspective was adopted.

Effectiveness data:
The effectiveness data came from a population-based observational study of a cohort of people prescribed NPEP between 1998 and 2004. All 1,601 patients who were eligible for NPEP were enrolled in the study. The majority of patients were male and the median age was 33 years. Follow-up was at four weeks and six months. NPEP was provided through hospitals, general practitioners, or sexual health clinics. The main outcome was the number of HIV infections avoided.

Monetary benefit and utility valuations:
Quality-adjusted life-year (QALY) estimates were obtained from a published study.

Measure of benefit:
The summary measure of benefit was the QALY.

Cost data:
The costs associated with NPEP (consultations, tests, and drugs) were included in the analysis, along with the lifetime treatment costs associated with HIV infection. The cost estimates were derived from a number of sources. The consultation costs for one of the hospitals involved in the study were obtained from the human resources department of that hospital. The general practitioner costs were derived from the Medicare Benefits Schedule and some drug costs were from the Pharmaceutical Benefits Schedule. The resource use data were from the observational study that provided the effectiveness estimates. The price year was 2005 and all costs were reported in Australian dollars (AUD). They were discounted at an annual rate of 5%.
Analysis of uncertainty:
A sensitivity analysis was conducted on the key model parameters, including HIV transmission rates, completion rates, and drug regimens. A threshold analysis was completed, for the main parameters, and the value required to achieve cost-effectiveness at a threshold of AUD 50 000 per QALY was calculated for each parameter separately.

Results
The NPEP programme cost AUD 2.8 million and prevented 1.5 to 4.9 infections. The cost per infection avoided was AUD 1,647,476 and the cost per QALY gained was AUD 176,772.

The results were relatively sensitive to the probability of HIV infection. When the risk of HIV transmission, after unprotected receptive anal intercourse, was increased from 0.28% to 2.48%, the cost-effectiveness threshold of $50,000 per QALY gained was achieved.

Authors' conclusions
The authors concluded that NPEP was not cost-effective at a willingness-to-pay of AUD 50,000 per QALY gained.

CRD commentary
Interventions:
The intervention was adequately described and appeared to be appropriate in the authors' setting. The comparator was no intervention and no further details were given.

Effectiveness/benefits:
Most of the effectiveness data were from an observational study. Randomised controlled trials are generally considered to provide the best evidence as they control for known and unknown differences between study groups. The impact that any bias or confounding, inherent in observational studies, might have had on the outcomes of the study is unclear. The main outcome measure was the QALY, but the data were from a study in another setting and it is not clear whether or not they were relevant to the Australian context.

Costs:
The costs appeared to reflect the perspective stated. The resource use and unit costs were reported separately and appear to have been appropriate. The details of other adjustments to the costs, including the price year, were reported.

Analysis and results:
The authors used a "no NPEP" comparator and this appears to have had zero costs and benefits, but this was not explicitly stated. The cost-effectiveness ratio was the total cost of the programme, minus the lifetime treatment costs for all infections avoided, divided by the total QALYs gained from avoiding infection. An incremental analysis was not performed. The issue of uncertainty was satisfactorily addressed through the sensitivity analysis. The authors discussed some limitations to their analysis and these included the uncertainty surrounding the estimate of the effectiveness of NPEP.

Concluding remarks:
The study had some methodological limitations, which have been outlined, but the conclusion reached by the authors seems to be appropriate.

Funding
Not stated.

Bibliographic details

PubMedID