The cost of treating genital warts

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.

Health technology
The study compared the following five strategies: (1) Podofilox, (2) podophyllin, (3) trichloroacetic acid (TCA), (4) cryotherapy, and (5) laser therapy, in the treatment of patients with moderate genital warts.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Men and women with two to 20 warts, covering a combined surface area of up to 10cm².

Setting
Primary care. The economic study was carried out in the USA.

Dates to which data relate
The effectiveness data were extracted from studies published in the period 1980-1992. Resource use data were estimated by a panel of experts. The date to which the resource use data referred was not specified. The cost data corresponded to the period between 1991 and 1993. The price year was 1992.

Source of effectiveness data
Effectiveness data were derived from a review of previously completed studies and expert opinion.

Outcomes assessed in the review
The efficacy (success rate defined as the number of 'wart-free' patients as a proportion of the total sample) and recurrence rate were the outcomes assessed in the review.

Study designs and other criteria for inclusion in the review
Randomized double- and single-blind controlled trials and other trials of unspecified design were included in the review. The authors reported studies using populations not likely to be eligible for treatment with the methods investigated in this study.

Sources searched to identify primary studies
MEDLINE was searched for studies published since 1977.
Criteria used to ensure the validity of primary studies
Not reported.

Methods used to judge relevance and validity, and for extracting data
Not reported.

Number of primary studies included
Forty primary studies were included in the review. Of these, 19 were randomized controlled studies, five were single-blinded and eight were double-blinded studies.

Methods of combining primary studies
Primary studies were not combined since the differences between the studies in terms of study design and other criteria were found to be so wide that pursuing a formal meta-analysis was regarded as unhelpful.

Investigation of differences between primary studies
The authors reported that the studies differed in terms of the definition of wart recurrence, duration of follow-up, the location of warts, and the gender mix used in the patient sample.

Results of the review
Success and recurrence rates were:
- podofilox, 45 to 100%, and 15 to 91%;
- podophyllin, 22 to 100% and 33 to 55%;
- TCA (only one randomised study), 81% and 36%;
- cryotherapy, 54 to 100%, and 0 to 42%;
- laser therapy, 27 to 100% and 8 to 100%.

Methods used to derive estimates of effectiveness
Estimates of effectiveness were also derived from expert opinion.

Estimates of effectiveness and key assumptions
Combining the results of the literature review with their own experiences, the physician panel came to the conclusion that “no one treatment is consistently superior to the others in efficacy”.

Measure of benefits used in the economic analysis
Efficacy as measured by success rate.

Direct costs
Costs were not discounted. The quantities were reported separately from the prices. The costs measured were operating and overhead cost. The perspective adopted was that of the third party payer reimbursed on the basis of either physician charges, typical private insurer payments, or a resource-based relative value scale (RBRVS). The resource use
estimation was based on the opinion of a physicians’ panel. The sources of charge, payment, and RBRVS data were Med-Index, MEDSTAT Systems, and the national fee schedule from Medicare. The price year was 1992.

**Indirect Costs**
Not included.

**Currency**
US dollars ($)

**Sensitivity analysis**
The parameters investigated in the sensitivity analysis represented all the key parameters of the model including the number of follow-up visits, the cost of podofilox, and the relative efficacy of the strategies compared to podofilox. The analysis was carried out in the form of a one-way sensitivity analysis and threshold analysis (for relative efficacy).

**Estimated benefits used in the economic analysis**
Combining the results of the literature review with their own experiences, the physician panel came to the conclusion that “no one treatment is consistently superior to the others in efficacy”.

**Cost results**
The cost of podofilox per episode of care was $175 for women and $134 for men. The corresponding figures for podophyllin were $386 (men) and $262 (women), for TA were $386 (men) and $282 (women), for cryotherapy were $359 (men) and $286 (women), and for laser therapy were $291 (men) and $198 (women).

**Synthesis of costs and benefits**
A synthesis of costs and benefits was not required since, with the assumption of equivalent efficacy (adopted by the expert panel), the use of podofilox was the least costly strategy. The results of threshold analysis demonstrated that, if podofilox required three and five more follow-up visits, it would become more costly than laser therapy for women and TCA or podophyllin for men, and would thus no longer be the preferred strategy. The threshold analysis also showed that all other strategies would have to be "considerably more effective" than podofilox in order to become more cost-effective.

**Authors' conclusions**
Genital warts are likely to remain a major primary care problem for many years. This paper demonstrates that deciding on treatment for a common, often resistant, disease can be aided by an integrated approach which assesses both the clinical and economic consequences of the decision.

**CRD COMMENTARY - Selection of comparators**
No specific health technology was regarded as the comparator since all were commonly used in the treatment of moderate cases of genital warts. You, as a database user, should consider which health technologies are commonly used treatment options in your own setting.

**Validity of estimate of measure of benefit**
Despite a comprehensive literature review and a quality assessment of the primary studies included in the review, the internal validity of the final estimate of effectiveness can not be fully guaranteed, since, in final assessment, it relied on the assumptions made by a panel of experts.
Validity of estimate of costs
The resource quantities were reported separately from the prices. Insufficient details of the methods of cost estimation were given (it is, for instance, not possible to say whether capital costs were included). The costs associated with side effects of treatment (thought to be low) and indirect costs were not included in the analysis.

Other issues
The authors pointed out that the results are not generalisable to patients with mild or severe cases of wart burdens, for whom another therapy could be the most cost-effective. The results were not presented selectively.

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