Cost-effectiveness and patient satisfaction: Hawley and vacuum-formed retainers

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 objectives were to compare the cost-effectiveness of vacuum-formed retainers (VFRs) with Hawley retainers, and to evaluate patient satisfaction in both groups. The authors concluded that VFRs were more cost-effective than Hawley retainers and that the majority of subjects preferred VFRs. The methodology appears to have been appropriate and, in general, was clearly reported. The conclusions reached by the authors appear to be appropriate.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The main objective was to compare the cost-effectiveness of vacuum-formed retainers (VFRs) with Hawley retainers. A secondary objective was to evaluate patient satisfaction in both groups.

Interventions
VFRs were compared with Hawley retainers over a six-month period.

Location/setting
UK/Specialist practices

Methods
Analytical approach:
The effectiveness data for this economic evaluation were derived from a single clinical trial conducted over a six-month period. The authors stated that the study was carried out from the perspectives of the National Health Service (NHS), the orthodontic practice, and the patient.

Effectiveness data:
The effectiveness data were derived from a randomised controlled trial (RCT) with a sample size of 397. The outcomes were compared at baseline, three months and six months. The primary outcome was the total change in Little's Irregularity Index (LII). Patient satisfaction was also measured at both three and six months.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The clinical outcome (total change in LII) and patient satisfaction were not synthesised with costs.

Cost data:
All cost categories associated with the perspectives appear to have been included. The costs to the NHS included those for original repairs and replacement retainers. The costs to orthodontic practice included those for clinical time, laboratory tests and any fees paid by patients. The costs to patients were those associated with attending unscheduled appointments, including travel, childcare, patient fees and lost income. The resource use data were prospectively collected throughout the trial. The unit costs were obtained from publicly available sources, including the statement of dental remuneration, the laboratory fee guide, and the orthodontic practice guide. The price year was 2003.

Analysis of uncertainty:
A one-way sensitivity analysis was conducted on the time in clinic data to evaluate the impact on costs. Bootstrapping with 1,000 replications was conducted to obtain confidence intervals for the resource use data.

**Results**
The total change in LII was significantly greater in the Hawley group than in the VFRs group over six months (p<0.001).

The patient satisfaction analysis demonstrated that the majority of subjects showed a preference for VFRs, compared with Hawley retainers (p<0.001).

The mean cost to the NHS per patient was EUR 152.42 in the Hawley group and EUR 121.08 in the VFRs group.

The mean cost to the orthodontic practice per patient was EUR -1.22 in the Hawley group and EUR -33.83 in the VFRs group.

The mean cost to the patient was EUR 9.15 in the Hawley group and EUR 6.93 in the VFRs group.

Bootstrapped means and confidence intervals were also presented.

VFRs were dominant (more effective and less costly) over Hawley retainers.

**Authors' conclusions**
The authors concluded that VFRs were more cost-effective than Hawley retainers and that the majority of subjects preferred VFRs.

**CRD commentary**
**Interventions:** Both interventions were described and represented current practices in the UK.

**Effectiveness/benefits:**
The effectiveness data were derived from a single centre RCT. An assessment of the trial's internal validity was not possible as full details of the trial were not reported. To confirm comparability of baseline characteristics, the clinical paper should be consulted (Rowland et al. 2007, see 'Other Publications of Related Interest' below for bibliographic details). The primary and secondary outcomes were well reported and as no summary measure of benefit was derived, the primary clinical outcome was used in the economic analysis.

**Costs:**
The cost categories were those associated with the perspectives stated by the authors. The unit costs and sources of the cost data were well reported. However, the resource quantities were not clearly reported, which makes it difficult to ascertain in detail the scale of the resource use. This may limit generalisability of the analysis. Apart from this limitation, the cost analysis, along with appropriate cost adjustments, was well reported. Further, in the sensitivity analysis, the difference in clinic time required for each retainer had an impact on total cost.

**Analysis and results:**
No incremental analysis was required because VFRs were dominant (more effective and less costly) over Hawley retainers. The methodology of the economic evaluation and the sensitivity analysis were, on the whole, well reported. The unit costs, patient satisfaction, and the results were well reported.

**Concluding remarks:**
The methodology appears to have been appropriate and, in general, was clearly reported. The conclusions reached by the authors appear to be appropriate.

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