The cost-effectiveness of supportive periodontal care: a global perspective

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 undertake a cost-effectiveness analysis, comparing supportive periodontal care provided by state or private dental practices, or periodontal specialist practices, in eight countries. The authors concluded that specialist practices were good value for money for state or private patients in the UK and Australia, and in Spain with a modest value for avoiding attachment loss. Higher values were needed for other countries. There were several limitations and the authors’ conclusions should be considered with caution.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to evaluate the cost-effectiveness of supportive periodontal care, for preserving clinical attachment and avoiding tooth loss, provided in general or periodontal specialist practices, as publicly subsidised or private dental care, in eight countries.

Interventions
Patients within the state health care system had three options; treatment by their general public dentist (not available in Germany), treatment by a general private dentist, or treatment at a specialist periodontal practice. Patients in the private care system had two options; private care or care at a specialist periodontal practice. Supportive care consisted of measures to support the patients’ efforts to control infection.

Location/setting
UK, Australia, Germany, Ireland, Japan, Spain, Sri Lanka, and USA/primary care.

Methods
Analytical approach:
An epidemiological model was used to simulate the cost and effects of the different options in each country. The authors stated that the analysis was undertaken from the perspective of the patient. The time horizon was 30 years.

Effectiveness data:
The effectiveness parameters were from selected published sources. The authors assumed that the effectiveness of the supportive care was a function of the clinician’s time. The effectiveness data were adjusted, using an exponential function, based on the total clinician’s time per year, for each dental health care scenario. Additional time was assumed to produce diminishing marginal increases in effectiveness.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The primary outcome measure was clinical attachment loss and a secondary outcome was tooth loss. The outcomes were discounted at an annual rate 3.5%.

Cost data:
The patient costs included the supportive periodontal care and tooth replacement due to periodontitis. The total patient time for supportive care (clinic and travel time) was valued using the average wage in each country. This was added to
the supportive care charges to determine the total cost of supportive care, from the patient's perspective. Tooth replacement was assumed to require three visits for a resin-bonded bridge or five visits for a metal-based denture or a single implant restoration. Travel time to general or specialist practices was estimated. All costs were reported in local currency and converted, using purchasing power parities, to US dollars ($), for the price year 2009. Future costs were discounted at an annual rate of 3.5%.

Analysis of uncertainty:
Alternative assumptions for the relationship between clinician time and outcomes were explored to assess how sensitive the results were to these effectiveness assumptions. For each new scenario, incremental cost-effectiveness ratios were calculated. The impact of increasing the discount rate for costs and outcomes to 5% was assessed.

Results
In each country, the provision of supportive periodontal care at a specialist periodontal practice was more expensive than in a general private practice, which was more expensive than in the general state system.

For patients in the state care system, compared with state treatment, the incremental cost per additional millimetre of clinical attachment loss averted, over 30 years, with private treatment ranged from $450 in Sri Lanka to $11,050 in Japan. Private care was dominated, as it was more costly and less effective than state care, in the UK. It was extendedly dominated, as it was less effective and less cost-effective than specialist care, in Australia.

For patients in the private care system, the incremental cost per averted clinical attachment loss with supportive care at a specialist periodontal practice, compared with in private general practice, ranged from $1,050 in the UK to $13,200 in Germany.

Supportive care in specialist periodontal practice improved outcomes, but at higher costs than care provided by state-subsidised or private systems. It was usually more cost-effective than private dental practice. For private dental patients in Spain, the UK, and Australia, specialist care was cost-effective at modest values per clinical attachment loss averted.

The results were most sensitive to variations in clinician's time, especially for the secondary outcome, tooth loss.

Authors' conclusions
The authors concluded that supportive care in specialist periodontal practice was good value for money for state-funded or private patients in the UK and Australia, and in Spain if they place a modest value on avoiding attachment loss. For patients in Ireland, Germany, Japan, and the USA, a higher value for avoiding attachment loss was needed to justify supportive care in private or specialist practices.

CRD commentary
Interventions:
The interventions were described and adapted for each country.

Effectiveness/benefits:
The estimates of effectiveness appear to have been identified by a non-systematic review and it is unclear if all the best available evidence was used. Exponential functions were used to calculate the effectiveness of supportive care, which the authors assumed was a function of clinicians' time; some references for this assumption were given. The functions were reported, but no details of how well these models fitted the data were given, which introduced some uncertainty in the findings. The authors explained their choice of benefit measure, but other measures might be relevant for other settings. Several assumptions were reported, but the sources for the data from each country were not.

Costs:
The perspective of the analysis was stated to be that of the patient, and it appears that all the relevant costs were included. The sources for these cost estimates were not reported, reducing the transparency of the analysis and limiting its replication to other settings. The currencies, price year, and discount rates were all specified.

Analysis and results:
The results were not adequately presented. For example, the total attachment loss was not reported for each care option. The parameter uncertainty was partly investigated, by varying the relationship between clinician time and outcomes, and the discount rate. The sources were not reported in detail and not all the assumptions were justified.

Concluding remarks:
The study had several limitations, including a lack of detail in the reporting of the methods, data sources, and results. The authors’ conclusions should be treated with caution.

Funding
No funding received.

Bibliographic details

PubMedID
21554375

DOI
10.1111/j.1600-051X.2011.01722.x

Original Paper URL

Indexing Status
Subject indexing assigned by NLM

MeSH
Australia; Cost-Benefit Analysis; Dental Prophylaxis /economics; General Practice, Dental /economics; Germany; Great Britain; Health Care Costs; Humans; Ireland; Japan; Periodontal Attachment Loss /economics /prevention & control; Periodontics /economics; Private Practice /economics; Spain; Sri Lanka; State Dentistry /economics; Tooth Loss /economics /prevention & control; United States

AccessionNumber
22011001148

Date bibliographic record published
14/09/2011

Date abstract record published
05/10/2011