Could a national skin cancer primary prevention campaign in Australia be worthwhile? An economic perspective

Carter R, Marks R, Hill D

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
A national skin cancer primary prevention campaign in Australia. The hypothetical national campaign, based on a State campaign in Victoria ('SunSmart'), comprised: (1) a comprehensive education strategy including mass media, teaching resources and a sunlight protection policy and practice code; (2) structural changes including guidelines for worker's sun protection and downward pressure on the price of sunscreens; and (3) a variety of sponsorships.

Type of intervention
Primary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
The general population of Australia.

Setting
The campaign involved a number of health education initiatives within the general community. The economic study was carried out in Australia.

Dates to which data relate
Effectiveness data were collected during the period 1988-91; 1995/96 costs were used.

Source of effectiveness data
The estimate for final outcomes was based on a review of previously completed studies and on opinion.

Modelling
Predicted changes in sunburn were linked to corresponding reductions in total lifetime ultraviolet radiation (UVR) exposure, and then to anticipated outcomes in terms of reduced incidence of melanoma and non-melanoma skin cancer (NMSC).

Outcomes assessed in the review
The reduction in the incidence of sunburn was used as the outcome assessed in the review.

Study designs and other criteria for inclusion in the review
Not stated.

**Sources searched to identify primary studies**
Not stated.

**Criteria used to ensure the validity of primary studies**
Not stated.

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

**Number of primary studies included**
One primary study was included: the evaluation of the 'SunSmart' campaign in the state of Victoria, Australia

**Methods of combining primary studies**
Not necessary.

**Investigation of differences between primary studies**
Not necessary.

**Results of the review**
Data from the evaluation of the SunSmart campaign suggest that the incidence of sunburn was 0.59 in 1990/91 compared with 1998/99, i.e. a 41% reduction.

**Methods used to derive estimates of effectiveness**
The authors’ assumptions were used to derive estimates of effectiveness.

**Estimates of effectiveness and key assumptions**
The authors’ assumed that the reduction in the level of sunburn will be maintained over the 20-year life span of the health promotion initiative. Given the anticipated one-third reduction in the incidence of sunburn, it was assumed that a 20% reduction in total lifetime UVR was possible achieving a reduction of 249 deaths per annum from melanoma and 59 deaths per annum from NMSC.

**Measure of benefits used in the economic analysis**
The health outcomes were measured in terms of premature deaths deferred and potential years of life saved (PYLS). The PYLS per death deferred was 20 years for melanoma and 10 years for NMSC. Discounting (5%) was applied to benefits.

**Direct costs**
The net cost of the national programme over its assumed 20 years of operation was presented in present value terms using a 5% discount rate. Quantities and costs were not analysed separately. The estimation of the costs was based on published information from other studies. The focus of the cost analysis in the base case scenario was the estimated cost to the Federal government of funding a comprehensive national health promotion campaign, co-ordinating initiatives in education, structural change and sponsorships, less any savings in health care costs that could be anticipated from a
reduction in management costs for skin cancer. The cost of such a national campaign was based on an average cost of 28 cents per person in the 1988/89 to 1990/91 period, applied to the Australian population of 18 million people. The national programme was assumed to run over a 20-year period, at the same level of real expenditure throughout as the reference year 1995/96. The costs to individuals and their families were based on the consumption of sunscreen equivalent to one tube of sunscreen per year for every third person and the use of hats equivalent to one extra hat every 3 years for every second person.

**Indirect Costs**
Not included.

**Currency**
Australian dollars (Aus$).

**Sensitivity analysis**
A sensitivity analysis was performed by varying the key cost and outcome assumptions.

**Estimated benefits used in the economic analysis**
Over its 20 year course a national campaign would prevent 4,300 premature deaths (45,915 PYLS) compared with the 'do nothing' comparator (249 fewer deaths per annum from melanoma in years 5-20; plus 59 less deaths per annum from NMSC in years 15-20). If 'current practice' was included as the comparator then the benefit of a national campaign would be 11,479 PYLS.

**Cost results**
The financial outlay of a national campaign would be approximately Aus$5 million per annum (or a present value cost of Aus$62 million over the 20-years). The cost of the 'current practice' scenario was Aus$31.16 million.

**Synthesis of costs and benefits**
From the perspective of the federal government as third party funder, the initiative would cost approximately Aus$1,360 per PYLS (ignoring the cost offsets). If the potential cost offsets stemming from the reduction in skin cancer management costs are included, then a national programme which proved to be as effective would not only save lives, but would pay for itself twice over. By including the State/Territory governments and anticancer bodies (the 'current practice' comparator) a cost per PYLS of Aus$2,715 (with offsets excluded) was estimated, together with a cost saving of approximately Aus$11 million. The analysis incorporating costs to individuals and their families in complying with the recommendations achieved a result of Aus$25,134 per PYLS (or Aus$21,531 PYLS including cost offsets). The cost-effectiveness results proved to be robust to variations in the discount rate, inclusion of a 5-year lag between melanoma incidence and death, and a variety of pessimistic cost and outcome-variations.

**Authors' conclusions**
The study results, although indicative only, strongly suggest that a comprehensive and well funded national skin cancer health promotion campaign would prove excellent 'value for money' from the perspective of the Federal government as third party funder. Further work is necessary to explore in more detail the value of the relative components of these campaigns as a way of ensuring that they continue to be cost-effective in the long-term.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of comparators is clear.
Validity of estimate of measure of benefit
As the authors stated, the estimate of the measure of benefit (in terms of the reduction in the total dose of sunlight received) is probably conservative. This is because the use of sunburn as a surrogate for the proportional reduction in the exposure to sunlight probably underestimates the degree to which the reduction has occurred.

Validity of estimate of costs
Resource quantities were not reported separately from prices and inadequate details of the method of cost estimation were given in this paper. The authors stated that the health sector cost offsets are based on ‘direct costs’ only. The estimates are likely to be a conservative estimate because the reference year probably involves lower real costs for skin cancer management than might be experienced in the future, when savings from a national health promotion campaign might be realised and because the estimates of the cost offsets are based on conservative estimates of current disease management costs.

Other issues
The authors’ conclusions were justified given the uncertainties in the data. The issue of generalisability to other countries was not assessed.

Source of funding
None stated.

Bibliographic details

Indexing Status
Subject indexing assigned by CRD

MeSH
Australia; Cost-Benefit Analysis; Health Education /economics; Health Knowledge, Attitudes, Practice; Melanoma /prevention & control; Skin Neoplasms /prevention & control; Sunburn /prevention & control; Sunscreening Agents /therapeutic use; Ultraviolet Rays /adverse effects

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