Estimate of the benefits of a population-based reduction in dietary sodium additives on hypertension and its related health care costs in Canada

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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 study evaluated the clinical and economic impact of a population-based programme of reduction in dietary sodium additives, compared with routine care (no specific counselling policy), in the Canadian setting. The authors concluded that the programme led to a large reduction in hypertension prevalence and health care cost-savings. Overall, this economic evaluation was satisfactorily carried out and the authors’ conclusions are valid, although there are some limitations due to the assumptions required to derive effectiveness data and the lack of sensitivity analyses.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim of the study was to determine the clinical and economic impact of a population-based programme of reduction in dietary sodium additives, compared with routine care (no specific counselling policy), in the Canadian setting.

Interventions
The study examined a programme for a population-wide reduction in dietary sodium intake by 1,840 mg/day, aimed at reducing the prevalence of hypertension and increasing the awareness, treatment and control rates of hypertension. This intervention was compared with routine care, i.e. no advice programme.

Location/setting
Canada/primary care.

Methods
Analytical approach:
This economic evaluation used published national surveys to determine the burden of disease under the two alternatives being studied. The perspective of the study was not explicitly stated, but it appears to have been that of the health care system. The time horizon of the analysis was not clear.

Effectiveness data:
The clinical estimates were derived from a selection of known relevant studies. Specifically, the prevalence of hypertension relied on national surveys carried out in Canada (the Canadian Community Health Survey and the Canadian Heart Health Surveys). Treatment effect (impact of a reduction in dietary sodium intake of 1,840 mg/day) was obtained from a meta-analysis of 20 clinical trials. The key clinical estimate was the reduction in blood pressure associated with sodium restriction.

Monetary benefit and utility valuations:
None.

Measure of benefit:
The main benefit measure was the prevalence of hypertension, which was estimated using published evidence.

Cost data:
The analysis of the costs included the costs associated with physician visits, pharmaceuticals and laboratory tests. The
costs of laboratory testing and physician visits were based on the 2001 to 2003 Ontario Health Insurance Plan, while the number of physician visits and costs of medications were taken from 2003 IMS Canada. The costs were in Canadian dollars (CAD). The costs referred to 2001 to 2003 prices, which were not adjusted to a single price year.

Analysis of uncertainty:
The issue of uncertainty was not addressed.

Results
The prevalence of hypertension decreased from 19.4% with routine care to 13.5% with decreased sodium intake, resulting in an absolute change of −5.9% (relative change of −30.3%). The greatest relative gain was in the categories of treated and controlled patients, the increase being due to the patients’ awareness of their condition.

The expected cost reduction resulting from the population-based intervention to reduce sodium intake would be CAD 429,594,000 (−18%) in comparison with no intervention. This resulted from a reduction of 6.5% in general practitioner visits and laboratory tests in relation to hypertension and a reduction of 23% in the use of medications (that generated almost 90% of the cost-savings).

Authors' conclusions
The authors concluded that a population-wide programme aimed at lowering dietary sodium additives would result in a large reduction in hypertension prevalence and health care cost-savings in Canada.

CRD commentary
Interventions:
The rationale for the choice of the comparators was clear as the proposed intervention was compared with the current standard of care in the authors' setting. The national programme was clearly described and justified in accordance with national guidelines.

Effectiveness/benefits:
The clinical estimates were derived from an individual selection of sources, most of which were national databases, which were relevant to the authors' setting. The use of administrative sources was supported by data from a meta-analysis of 20 clinical trials, which represents a solid source of evidence from which to determine the treatment effect. All these sources were clearly described and appear to have been appropriate for the analysis. Overall, a conservative approach was used when uncertain estimates were selected. It was noted that prevalence estimates were obtained for surveys performed 15 years before this study, so they may not have been totally relevant to the current situation.

Costs:
The authors justified the cost categories they included, which were relevant given the perspective of the analysis (probably third-party payer). Calculations and assumptions made to derive the costs were reported transparently. A single price year was not given, but the period to which the costs referred was stated. Other details, such as sources of the costs and resources, were reported.

Analysis and results:
The costs and benefits were not combined. Thus, in effect, a cost-consequences analysis was conducted. However, the study intervention led to both cost-savings and improved effectiveness. The results of the study were reported clearly, but the issue of uncertainty was not addressed; this would have been useful given the assumptions the authors made.

Concluding remarks:
The study methodology was accurately described, although some estimates were not recent and may not reflect actual epidemiological patterns. The study results were reported clearly and the authors' conclusions appear robust, although no sensitivity analyses were conducted.

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Bibliographic details

Other publications of related interest


Indexing Status
Subject indexing assigned by NLM

MeSH
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