Economic evaluation of a primary care trial to reduce weight gain in overweight/obese children: the LEAP trial

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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**
This study assessed the clinical and economic impact of a secondary prevention programme, delivered by family physicians, to reduce weight in overweight and mildly obese children aged five to nine years. The programme increased health care and family costs without resulting in better clinical outcomes, except for modest improvements in parent-reported dietary habits. A valid analytic framework was used. There were some methodological limitations and more details were presented elsewhere, but the authors’ conclusions appear to be robust.

**Type of economic evaluation**
Cost-effectiveness analysis

**Study objective**
The objective was to examine the clinical and economic impact of a secondary prevention programme, delivered by family physicians, to reduce weight in overweight and mildly obese children aged five to nine years.

**Interventions**
The programme was the Live, Eat and Play (LEAP) programme, which consisted of a series of three 2.5-hour educational sessions for general practitioners (GPs), who then asked parents of eligible children to attend four consultations over a 12-week period (one of 20 to 40 minutes and three of 15 to 20 minutes), with or without their child present. The objective of the programme was to reduce weight by targeting physical activity and dietary habits.

**Location/setting**
Australia/primary care.

**Methods**

**Analytical approach:**
The analysis was based on data from a single trial and the authors stated that it considered those costs borne by families and the health care system.

**Effectiveness data:**
The clinical evidence came from a randomised controlled trial (RCT), which was carried out between 2002 and 2003 in 29 family medical practices in Melbourne, Australia. The methods, study design and clinical results were published elsewhere. There were 34 participating GPs and 163 participating children, with 82 in the intervention group and 81 in the control group. Researchers were blinded to treatment allocation. Children were followed-up at nine and 15 months. The primary endpoint was the child’s body mass index (BMI). The questionnaires used to collect data on primary outcomes and secondary outcomes (physical activity and dietary habits) were reported.

**Monetary benefit and utility valuations:**
Not included.

**Measure of benefit:**
Health outcomes were not aggregated and no summary benefit measure was used, as a cost-consequences analysis was carried out. The key clinical endpoints were the changes in the child’s BMI, physical activity, and dietary habits.
Cost data:
The economic analysis included the costs of GP visits and parents’ additional time and money required to meet the changed dietary and physical activity practices. The costs associated with the initial development of the programme were not included. Resource use was derived directly from the trial using three main sources: the LEAP team records, practice audit data, and parental written questionnaires at nine months. The costs were based on tariffs set by the Medicare Benefits Schedule, self-reported out-of-pocket expenses, and average wages in the Australian setting. All costs were in Australian dollars (AUD) and the price year was 2003.

Analysis of uncertainty:
A deterministic sensitivity analysis was undertaken to consider the impact of variations in the unit cost estimates and intervention costs, for example, by assuming greater numbers of children treated per GP.

Results
From the perspective of the health care system, at 15 months, the mean cost per child was AUD 873 in the intervention group and AUD 64 in the control group. The difference of AUD 809 (95% CI 784 to 833) was statistically significant. There was also a statistically significant difference in the total costs borne both by the health care system and by families (AUD 4,094; 95% CI 864 to 7,324).

No statistically significant differences in BMI (21.7kg versus 21.1kg per m²) nor daily physical activity were observed between the groups. Only dietary habits improved significantly in the intervention group (18.7 versus 16.1).

In all scenarios considered in the sensitivity analysis, there remained a significant additional cost associated with the intervention from the health care system perspective, while differences from the societal viewpoint depended on the reported differences in family time spent on child physical activity.

Authors’ conclusions
The authors concluded that the programme increased health care and family costs without resulting in improvements in clinical outcomes, but there was some evidence of a modest improvement in parent-reported dietary habits.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear since no intervention was the standard pattern of care. A more detailed description of both strategies was presumably provided in the RCT publication.

Effectiveness/benefits:
Little information on the RCT that supplied the clinical evidence was provided since this trial had already been published. In general, a RCT is considered to be a valid source of data due to the strengths of its design and other methodological aspects that should limit selection and assessment biases. Statistical analyses were carried out to test for significant differences in the clinical endpoints. The large number of GPs involved makes the data representative of the patient population. It is unclear whether a longer follow-up would have provided different results.

Costs:
The analysis of costs was carried out appropriately and this study focused on the economic analysis. Extensive details were provided on the assessment of costs and quantities of resources used. The analysis was consistent with the perspectives and the data sources were reported and reflected the Australian system. Statistical analyses of costs were appropriately carried out and variability in the cost results was investigated.

Analysis and results:
The costs and benefits were not synthesised due to the cost-consequences framework. This might be a limitation of the analysis, but it was consistent with the scope of the study and the lack of statistically significant differences in the clinical inputs. The issue of uncertainty was restricted to the assessment of how robust the cost estimates were to changes in the key variables. For external validity, the authors stated that their findings might have implications for countries, such as the USA and the UK, where guidelines recommend similar programmes for childhood obesity. They stated that the cost of the intervention was probably overestimated in their study since a small number of children per
GP were selected.

Concluding remarks:
A valid analytic framework was used. There were some methodological limitations and more details were presented elsewhere, but the authors’ conclusions appear to be robust.

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