The costs, effects and cost-effectiveness of counteracting overweight on a population level: a scientific base for policy targets for the Dutch national plan for action


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 examined the clinical and economic impact of a community intervention and an intensive lifestyle programme to reduce overweight prevalence, defined as a body mass index of at least 25 kg/m², at a population level in comparison with no intervention. The authors concluded that both interventions were cost-effective from the perspective of the national health system, despite a reduced impact on overweight prevalence in the Netherlands. The authors' conclusions are robust despite limited reporting on some sources, especially on the economic side of the analysis.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
The objective of the study was to examine the clinical and economic impact of a community intervention and an intensive lifestyle programme to reduce overweight prevalence, defined as a body mass index of at least 25 kg/m², at a population level in comparison with no intervention.

Interventions
The study examined a community-based approach offered to 90% of the population to prevent overweight in the general population and an intensive lifestyle programme offered to 10% of the population and targeted at individual overweight people and implemented within a health care setting. The community-based approach consisted of communication strategies, through mass media, combined with social support such as self-help groups, risk factor screening and/or counselling in various setting. The two programmes were evaluated both individually and in combination.

Location/setting
Netherlands/community.

Methods
Analytical approach:
A Markov model, the RIVM Chronic Disease Model, was developed to determine the development over time of demography, risk factor prevalence, disease incidence and mortality in the Dutch context, and to simulate the clinical and economic impact of different interventions. The two time horizons considered were 20 and 80 years. The authors stated that the perspective of the health care system was adopted.

Effectiveness data:
The clinical estimates appear to have been derived from known relevant sources. In particular, the effectiveness of the two programmes was based on two Dutch projects (the community-based "Hartslag Limburg" project and the Dutch “Study on Lifestyle intervention and Impaired glucose tolerance Maastricht”), the results of which were in line with other international studies, as the authors demonstrated. Other probabilities used in the decision model came from national registries and scientific publications. Details of these sources were described in an appendix.

Monetary benefit and utility valuations:
Utility valuations were derived from the literature (details not given).
Measure of benefit:
The summary benefit measures were the life-years (LYs) and quality-adjusted life-years (QALYs). These were estimated using the decision model. An annual discount rate of 4% was applied to future benefits.

Cost data:
A breakdown of the cost items was not reported, and the categories of costs included in the analysis were presumably presented in the appendix. The direct costs included those of the two interventions, as well as cost-savings associated with the reduction in future disease associated with being overweight. The indirect costs of overweight and inactivity were not accounted for as they were not relevant from the perspective of the health care system. The costs were derived from a Dutch Cost of Illness study published in 2002 and from the two Dutch projects. Resource use reflected real consumption of health care services and did not include productivity or start-up costs. The costs were in euros (EUR). Future costs were discounted at an annual rate of 4%. The price year was 2004.

Analysis of uncertainty:
A univariate sensitivity analysis was undertaken on the costs, effects, time horizon and discount rate in order to consider worst- and best-case scenarios.

Results
The target population in the intervention scenario comprised 11,940,000 persons for the community-based approach and 650,000 persons for the intensive lifestyle programme.

The study demonstrated that the large scale implementation of the two programmes decreased the prevalence of overweight by 3% and of inactivity by 2%, at a cost of EUR 7 per adult capita a year.

Over a 20-year period, the cumulative LYs and QALYs saved in comparison with no intervention were 110,000 and 150,000, respectively. Over the 80-year period, the LYs and QALYs were 1,300,000 and 1,220,000, respectively.

The total costs were only presented graphically. Differences in health care costs between the two scenarios ranged from -EUR 18,000,000 after about 10 years to EUR 40,000,000 after about 45 years.

Considering an 80-year time horizon, the incremental costs per LY and QALY gained in comparison with no intervention were, respectively, EUR 6,000 and EUR 5,700 with the combined programme; EUR 5,100 and EUR 5,000 with the community-based approach alone, and EUR 8,400 and EUR 7,400 with the intensive lifestyle programme alone.

The sensitivity analysis demonstrated that, even under unfavourable scenarios, the two programmes remained cost-effective.

Authors’ conclusions
The authors concluded that, realistically, the implementation of programmes to prevent and/or reduce overweight had a reduced impact on overweight prevalence in the Netherlands. Nevertheless, both interventions were cost-effective from the perspective of the national health system, with the community-based approach being slightly more cost-effective than the intensive lifestyle programme.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear in that no intervention represents the current pattern of care in several settings. The two intervention programmes were only partly described.

Effectiveness/benefits:
The authors did not report the methods and conduct of a systematic review of the literature, thus the primary sources of data might have been identified selectively. Key estimates were based on two Dutch studies, which reflected the impact of the interventions in the authors' context. The use of national sources to derive clinical estimates is usually considered appropriate to reflect "real-world" implementation patterns. The sources of the other data were not explicitly described,
but more information should, presumably, be found in the online appendix. Similarly, there was little information on the derivation of the utility weights required to calculate QALYs. The selection of two benefit measures (i.e. LYs and QALYs) is a strength of the analysis, as both are likely to be appropriate and comparable with the benefits of other health care programmes.

Costs:
The analysis of the costs was the subject of only limited reporting, with full details of the analysis probably being available in the online appendix. The costs were not broken down and the categories of costs were not reported. However, the costs were derived from a national study and are likely to reflect the local accounting system. In general, it is difficult to judge the validity of the cost analysis.

Analysis and results:
The authors reported the results of the base-case in detail, while the findings of the sensitivity analyses were only presented in part. The authors acknowledged that a number of assumptions were required in the analysis, both to simplify the simulation and to overcome the lack of evidence required in the model. However, even if key individual model inputs had a strong influence on the cost and effect results separately, the cost-effectiveness and cost-utility ratios were robust and well below the commonly used threshold for health technologies. In terms of the generalisability of the study findings to other settings, the authors made an example of projecting their analysis to the US context, using US data on size of the eligible population and prevalence rate of overweight.

Concluding remarks:
The study was characterised by limited reporting on some sources of data given that the bulk of the evidence was available in an online appendix. However, the selection of national implementation projects for both costs and effectiveness enhances the robustness of the analysis, as further shown in the sensitivity analysis. Thus, the authors’ conclusions should be considered valid.

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