An evaluation of the effectiveness and cost effectiveness of the National Exercise Referral Scheme in Wales, UK: a randomised controlled trial of a public health policy initiative

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 evaluated the effectiveness and cost-effectiveness of the Welsh Government’s National Exercise Referral Scheme (NERS) in increasing physical activity and improving mental health. The authors concluded that the NERS was likely to be cost-effective at established UK thresholds. The randomised controlled trial appears to have been well conducted, but the economic evaluation was based on a subgroup of participants, with potential for bias, making the results uncertain.

Type of economic evaluation
Cost-utility analysis

Study objective
This study evaluated the effectiveness and cost-effectiveness of the Welsh Government’s National Exercise Referral Scheme (NERS), in increasing physical activity and improving mental health, for inactive people with a risk of coronary heart disease; mild-to-moderate depression, anxiety or stress; or both.

Interventions
The intervention was the NERS, which consisted of 16 weeks of exercise supervised by a qualified exercise professional, a lifestyle questionnaire, a health check, and an introduction to leisure centre facilities, followed by access to one-on-one exercise instruction, group exercise classes, or both, with discounted rates for exercise activities. This was compared with usual care, plus a leaflet highlighting the benefits of exercise and listing the addresses of local facilities.

Location/setting
UK/out-patient care.

Methods
Analytical approach:
The analysis was based on a large randomised controlled trial (2,160 people) conducted in Wales, over 12 months. A subgroup of 798 participants was analysed. The authors stated that they took a public sector perspective.

Effectiveness data:
Extensive details of the trial were presented, including the inclusion criteria, baseline data, loss to follow-up, and randomisation methods. Patients were randomised within groups for gender, age, General Practice Physical Activity Questionnaire (GPPAQ) status, and local health board. The primary outcome of the trial was the total minutes of weekly physical activity at 12-month follow-up, assessed using the 7-day Physical Activity Recall (7D-PAR) administered by phone. Other outcomes were GPPAQ status, and Hospital Anxiety and Depression Scale (HADS) score. Of those allocated to the intervention, 43.8% (473 patients) completed the 16-week programme, 41.3% (446 patients) started the programme, but did not complete it, and 14.9% (161 patients) failed to attend.

Monetary benefit and utility valuations:
The utility scores were from patient completed EQ-5D surveys at six and 12 months. EQ-5D Visual analogue Scale data were also collected. The six-month data were assumed to be the starting scores. The patients who supplied the utility scores (395 intervention, and 391 control) tended to be older than the general trial patients.
Measure of benefit:
Quality-adjusted life-years (QALYs) were the summary measure of benefit.

Cost data:
The resource use data were from Client Service Receipt Inventory forms, completed by patients at six and 12 months. The differences in resource use between intervention and control patients were not statistically significant, but control patients were referred for more tests. The costs of the intervention were collected within the trial. All costs were in UK £.

Analysis of uncertainty:
The authors performed sensitivity analyses with alternative assumptions for the starting utility scores, and with costs for the intervention reduced by participant co-payments (£1 or £2 per session), based on a survey of their willingness-to-pay for an exercise session. A cost-effectiveness acceptability curve was presented.

Results
In the main analysis, the difference in costs between the intervention and control group was £327, and the difference in QALYs was 0.027, which generated an estimated incremental cost-effectiveness ratio of £12,111 per QALY gained.

The intervention was cost-effective in 89% of simulations at the National Institute for Health and Care Excellence (NICE) willingness-to-pay threshold of £30,000 per QALY gained.

When the starting utility was assumed to be the mean of the six-month utility for the intervention and control, the incremental cost-effectiveness ratio decreased to £6,055 per QALY gained, and the likelihood of cost-effectiveness increased to 96%. Using control group utilities for both groups, resulted in a ratio of £7,109 per QALY gained.

Reducing the cost of the intervention by £32 (£1 per session; two sessions per week) decreased the ratio to £10,926 per QALY gained, and reducing the cost by £64 reduced the ratio to £9,741 per QALY gained.

Authors’ conclusions
The authors concluded that the NERS was likely to be cost-effective at established UK cost-effectiveness thresholds.

CRD commentary
Interventions:
The intervention and control were well described and appear to have been appropriate. Other exercise referral schemes may have been available, but the objective was limited to assessing the Welsh scheme.

Effectiveness/benefits:
The trial was well conducted, but appears to have had many drop-outs; this may reflect clinical reality given the nature of the intervention. The reporting of the trial was generally good. No EQ-5D data were collected at the start, so the six-month values were used; this was six weeks after the exercise sessions had finished. The authors stated that this was a conservative estimate, but they provided no supporting evidence. As a subgroup of trial participants provided data for the economic evaluation, attrition and selection bias were possible. The analysed patients differed from the whole sample in several areas: more patients were referred for coronary heart disease factors only; more of them completed the intervention; and they were older. The sample of patients who filled out the EQ-5D questionnaires was reasonably large, but it was unclear if it was representative.

Costs:
The Client Service Receipt Inventory asked participants to recall their contacts with NHS primary care (including prescriptions) and secondary care, over the preceding six months, at six and 12 months from the start. These results were likely to be subject to recall bias. Only 12 months of resource use data were reported. Because no units and unit costs were reported, it is unclear what made up the resource use, and it is impossible to validate the data. The price year was not reported.

Analysis and results:
The authors reported that a cost-effectiveness acceptability curve was constructed, and this was presumably done by
bootstrapping, but only one side of the resulting confidence interval was reported, and the bootstrapping methods were not reported. The curve was not presented; only the probability of cost-effectiveness at £30,000 per QALY gained was given for any analysis. The one-year time horizon of the evaluation might not have been sufficient to capture all of the relevant costs and benefits of the intervention. The authors discussed another study, which modelled the lifetime benefits with only a 51% likelihood of cost-effectiveness at £20,000 per QALY gained.

Concluding remarks:
The trial appears to have been well conducted, but the economic evaluation was based on a subgroup of participants, with potential for bias, making the results uncertain.

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