A controlled trial of multiphasic screening in middle-age: results of the South-East London Screening Study

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
The health intervention examined in the study was multiphasic screening in individuals aged between 40 and 64 years, carried out in a primary care setting. Patients were invited by personal letter from their general practitioner to be screened at screening clinics.

Type of intervention
Screening.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised the general population aged between 40 and 64 years.

Setting
The setting was a primary care screening clinic. The economic study was carried out in two group general practices in South London and the Department of Community Medicine at St Thomas's Hospital in London, UK.

Dates to which data relate
Data on effectiveness and resource use were gathered from 1967 to 1976. The price year was 1976.

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was carried out retrospectively on a sample of patients different from those who were used in the effectiveness study.

Study sample
Power calculations were not performed. Patients enrolled in the study were identified through age-sex practice registers. An initial sample of 7,229 subjects was included in the study in the period 1967-1968: 3,876 in the screening group and 3,353 in the control group. At first assessment (two years after enrolment), the sample included 3,297 individuals in the screening group and 3,017 individuals in the control group. At second screening assessment, the sample comprised 2,530 individuals in the screening group and 2,357 patients in the control group.
Study design
This was a prospective, randomised controlled trial. The unit of randomisation to screening or control group was the family. Outcome assessment was performed every six months and at the two screening sessions, and at the final survey performed every two years. Loss to follow-up was due to patients either refusing to participate or moving to a different general practice area.

Analysis of effectiveness
The analysis of effectiveness appears to have been based on treatment completers only. The health outcomes estimated in the effectiveness analysis were yield and management of disease at screening; health conditions assessed through a survey measuring general health in terms of health status and prevalence of cardiovascular and respiratory diseases; general practice consultation rates; hospital admissions; certified sickness; and mortality. Baseline comparability of study groups was not clearly reported.

Effectiveness results
As regards yield and disease management at screening, at first screening an average of 2.3 diseases per person screened was found and the general practitioner did not previously know 53% of this morbidity. However, of that 53% of unknown disability, 95% was of a minor nature.

For new diseases discovered, little new therapeutic intervention was introduced. At further screening, the yield was even lower. No statistically significant differences were found in the comparison between screening and control groups in terms of health conditions, general practice consultation rates, hospital admissions, certified sickness, or mortality.

The overall consultation rate for men was 3.1% in the control group and 3.2% in the screening group, and for women 3.8% in the control group and 4% in the screening group.

The total number of admissions per 1,000 man/years at risk was 70.7 in the control group and 73.4 in the screening group.

The death rate per 1,000 man/years at risk was 9.2 in the control group and 10 in the screening group.

Clinical conclusions
The effectiveness analysis showed that multiphasic screening was as effective as conventional medical care among individuals aged between 40 and 64 years.

Measure of benefits used in the economic analysis
Health outcomes were left disaggregated and no summary benefit measure was used, thus a cost-consequences analysis was conducted. Although health outcomes were similar in the two study groups, it did not appear that the authors were willing to carry out a cost-minimisation analysis.

Direct costs
Discounting was not performed although costs were incurred over a period of nine years. Unit costs were not reported separately from quantities of resources. Only the crude average costs of screening (followed by one general practitioner consultation where necessary) were included in the analysis. The cost/resource boundary adopted in the study was not explicitly reported. The source of cost data was not reported, while resource use was retrospectively estimated in the effectiveness study. The price year was 1976.

Statistical analysis of costs
Costs were treated deterministically.
Indirect Costs
Indirect costs were not included in the analysis.

Currency
UK pounds sterling (). 

Sensitivity analysis
No sensitivity analyses were performed.

Estimated benefits used in the economic analysis
Please refer to the effectiveness results reported earlier.

Cost results
At 1976 prices the cost of screening was 12.27 (range: 15.39 - 9.35) per person, which should be considered as the extra cost of screening in comparison with conventional medical care, where screening is not performed.

The application of the multiphasic-screening programme to the entire UK population aged between 40 and 64 years would cost 142 million.

Further calculations suggested that, once screening clinics were operational, the cost of screening an extra person would be 4.35, due to the high initial fixed costs of manpower and equipment.

Synthesis of costs and benefits
Costs and benefits were not combined as a cost-consequences analysis was carried out.

Authors' conclusions
The authors concluded that the study demonstrated that multiphasic screening offered to a middle-aged population in the UK did not lead to improvements in several clinical outcomes and patient health status in comparison with conventional medical care. Although the cost of screening one person was low, the budget impact of offering such an intervention to the whole eligible population in the UK was considerable, even assuming that administrative problems could be overcome.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear. Conventional medical care was selected as it represented the standard approach in primary care and because the aim of the study was to assess the active values of multiphasic screening. You, as a user of this database should decide whether it represents a valid comparator in your own setting.

Validity of estimate of measure of effectiveness
The analysis of effectiveness was based on a prospective randomised controlled trial, which was appropriate for the study question. The study sample was representative of the study population from which it was drawn. The method of sample selection was reported, but comparability of study groups at baseline was not reported. The clinical analysis was based on treatment completers only.

Validity of estimate of measure of benefit
No summary benefit measure was used in the economic analysis. The analysis was therefore categorised as a cost-consequences study (see validity of effectiveness comments above).
Validity of estimate of costs
The perspective adopted in the cost analysis was not reported, but only the crude average costs of screening were included in the analysis. Only limited details of the economic analysis were reported. The source of cost data was not stated and unit costs were not reported separately from quantities of resources used. Both costs and quantities were treated deterministically. Cost estimates were specific to the study setting and no sensitivity analyses were conducted thus limiting the external validity of the results obtained. The price year was reported, thus making reflation exercises in other settings easier.

Other issues
The authors made some comparisons of their findings with those from other studies, but did not address the issue of the generalisability of the study results to other settings. Sensitivity analyses were not performed, thus limiting the external validity of the analysis. The study referred to the general population of individuals aged between 40 and 64 years and this was reflected in the conclusions of the analysis. The authors acknowledged that the analysis of the clinical results could have been made difficult due to problems of follow-up (such as the high migration rate).

Implications of the study
The study showed that multiphasic screening may be of no benefit for patient health and the authors suggest that "case-finding", defined as tests undertaken on patients who are already consulting the general practitioner for unrelated symptoms, could represent a more effective option for disease prevention.

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Other publications of related interest

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