Dedicated outreach service for hard to reach patients with tuberculosis in London: observational study and economic evaluation

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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 cost-effectiveness of the Find and Treat service, which was a dedicated mobile screening unit, with case management, for hard-to-reach patients with tuberculosis. The authors concluded that the service in London was cost-effective, as were its two components. The cost-effectiveness framework was valid and clearly presented. The authors’ conclusions appear to be robust.

Type of economic evaluation
Cost-utility analysis

Study objective
This study assessed the cost-effectiveness of the Find and Treat service, which was a dedicated mobile screening unit, with case management, for hard-to-reach patients with tuberculosis.

Interventions
The Find and Treat service had two parts: the mobile screening unit and case management. The service used links with drug and alcohol support groups, hostels, and street outreach and criminal justice services, in London, to find cases and to maintain contact with patients during treatment to ensure completion. It included staff to accompany patients to appointments and for home visits.

This was compared with no Find and Treat service, where individuals sought treatment without screening. Each part of the service was also assessed separately.

Location/setting
UK/community.

Methods
Analytical approach:
A compartmental model was used to simulate a cohort of individual patients of various ages, with active tuberculosis, over their lifetime. The authors stated that the analysis took the perspective of the health care taxpayer.

Effectiveness data:
The clinical data were mainly from the implementation of the Find and Treat service in London, UK, between September 2007 and September 2010. The analysis included 48 mobile screening unit cases, 188 cases referred for case management and 180 cases referred following loss to follow-up. The control group consisted of 252 age-matched patients, with risk factors, who passively presented and were notified to the Health Protection Agency between January, 2009 and August, 2010. The efficacy of the programme in identifying and treating tuberculosis cases was a key input for the model and these data were directly from the programme database. Other inputs were from published sources and guidelines.

Monetary benefit and utility valuations:
The utility values for untreated cases of tuberculosis and for improved health after two months of treatment were published estimates, obtained using the European Quality of life (EQ-5D) instrument.
Measure of benefit:
Quality-adjusted life-years (QALYs) were the summary benefit measure and they were discounted at an annual rate of 3.5%.

Cost data:
The economic analysis included the costs of staff salaries, training and development, travel and subsistence, administration, maintenance, cleaning, insurance, fuel, office management, and radiography, including equipment maintenance. Staff costs were increased to account for qualifications and capital overheads. The quantities of resources and costs for the programme were from the Find and Treat service budget. The cost of treatment for tuberculosis was estimated using National Institute for Health and Clinical Excellence (NICE) guidelines. The costs of diagnostic testing included the laboratory culture test, which was based on the official tariff for the microbiological pathology service. All costs were in UK pounds sterling (£) at 2009 to 2010 prices. A 3.5% annual discount rate was applied.

Analysis of uncertainty:
Alternative scenarios that were less favourable to the Find and Treat service were considered, including increased costs for mobile screening, increased costs for tuberculosis treatment, better quality of life with untreated tuberculosis, worse quality of life while on tuberculosis treatment, only half the asymptomatic cases progress to symptomatic disease, reduced loss to follow-up without the service for referred cases, and passive return to treatment for those referred due to loss to follow-up.

Results
The total costs were £1,700,000 with the service and £310,000 without it. The expected QALYs were 1,100 with the service and 920 without it.

The incremental cost per QALY gained with the Find and Treat service over no intervention was £6,400. When considering the two components of the service separately, the cost per QALY was £18,000 for mobile screening, and £4,100 for case management.

In the scenario analyses, even in the most unfavourable case, the incremental cost per QALY rose, but never exceeded the value of £10,000 for the full service, £26,000 for mobile screening, and £6,800 for case management.

Authors' conclusions
The authors concluded that the Find and Treat service in London was cost-effective, as were its two components. They recommended further studies assessing point of care testing in community outreach settings and a randomised trial for the service.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear. The authors stated that patients who presented themselves for treatment were the most appropriate control group because they received the care services that were available in London without the Find and Treat service. The service was described.

Effectiveness/benefits:
Most of the evidence came from the observational study of the implementation of the Find and Treat service. The service database contained detailed data for actual cases of tuberculosis that were detected and treated. The control patients were age matched and had at least one factor that defined them as hard to reach. The authors acknowledged that the lack of randomisation was a major limitation of their analysis and could have reduced the validity of the comparison, but they made assumptions that were generally conservative against the intervention and assessed several alternative scenarios to overcome this issue. QALYs were an appropriate benefit measure. They capture the impact of the intervention on the patients’ health and allow cross-disease comparisons. The utility values for these QALYs were derived from UK patients using an appropriate instrument.

Costs:
The economic analysis considered a wide range of costs for the implementation of the service and the detection and
treatment of tuberculosis. A breakdown of cost items was provided, with their relevant sources. The patterns of resource consumption were from the implementation of the service, but these and the unit costs were not reported separately. Some of the costs were from NICE reports, which should ensure that they were valid for the UK. The price year and discounting were clearly reported. The cost estimates were treated deterministically; some costs were varied in the sensitivity analyses.

Analysis and results:
The results were extensively presented. An incremental approach was appropriately used to synthesise the costs and benefits of the service and its components. The uncertainty was investigated in alternative worst-case scenarios. The authors stated that some potential benefits of the service, such as its impact on secondary transmissions, were not analysed and the cost-effectiveness of the intervention might have been underestimated. The model was extensively described in a web appendix and it was valid for estimating the long-term impact of the service on tuberculosis cases. The authors compared their results with those of other published studies, which generally found that tuberculosis screening was cost-effective. The results appear to be specific to the UK and it will be difficult to generalise them to other settings.

Concluding remarks:
The cost-effectiveness framework was valid and clearly presented. The authors’ conclusions appear to be robust.

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