An evaluation of the asthma intervention of the New York State Healthy Neighborhoods Program

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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.

Health technology
An outreach worker visited households in neighbourhoods with high levels of risk factors for asthma morbidity and mortality, and gave advice on how to reduce the risk of asthma after inspecting the home. This advice covered asthma management, the reduction of environmental triggers, the provision of environmental controls such as mattress and pillow covers to asthma patients, and the referral of children without a doctor.

Type of intervention
Treatment and secondary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised all members of households in a "target area" that has a high level of risk factors leading to asthma morbidity and mortality.

Setting
The setting was the community. The economic study was carried out in New York State, USA.

Dates to which data relate
The effectiveness and resource evidence referred to 1997 to 2000. The costs were calculated for many years but the main cost analysis was conducted for the year 2000.

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

Link between effectiveness and cost data
The costing was carried out retrospectively on the same population that was used to provide the effectiveness evidence.

Study sample
No power calculations were reported. Neighbourhoods were selected and all households in the neighbourhoods were invited to participate. The number of people assessed by the outreach workers was not given. The number of people diagnosed as asthmatics in programmes which had complete data was 3,228 for 1997 to 1999 and 835 for 2000.
Study design
This was a multi-centred, before-and-after study that took place at two different time periods. Six health departments were included in the first time period and five of these in the second time period. The duration of follow-up for each of the study periods was one year. The loss to follow-up was not given as only patients with complete data were included.

Analysis of effectiveness
The analysis was conducted on the basis of treatment completers only. The primary health outcome used was the hospitalisation rate for diagnosed asthmatics.

Effectiveness results
The hospitalisation rate went from 86.0 in 1997 to 44.5 in 1999.

The hospitalisation rate went from 95.6 in 2000 to 24.9 one year later.

Clinical conclusions
The authors concluded that the HNP was successful in reducing asthma morbidity, as shown by the reduction in the hospitalisation rates.

Measure of benefits used in the economic analysis
No summary measure of benefit was produced. In effect, the authors carried out a cost-consequences analysis.

Direct costs
No discounting was carried out as the costs were incurred during less than 2 years. The cost per programme for each health department and the cost per visit to a household were reported. It was assumed that half of the programme expenditure was aimed at asthma prevention. The average cost of an asthma hospitalisation in 2000 was also given. The quantities and the costs were not analysed separately. The costs were estimated from actual data, the source being New York State. No price year was given.

Statistical analysis of costs
No statistical analysis of the costs was carried out.

Indirect costs
No indirect costs were calculated.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
The total cost of all programmes was $1,248,011 in 1997 to 1999 and $1,249,367 in 2000.


It was assumed that half of this expenditure was targeted at asthma prevention, so that $624,683 was spent in 2000.

The cost of a single asthma hospitalisation was given as $8,230 in 2000. The reduction in hospital admissions of 110 reduced the hospital costs by $905,300 (110 multiplied by $8,230), which resulted in net savings of $280,617.

Synthesis of costs and benefits
The costs and benefits were not combined as the study was, in effect, a cost-consequences analysis.

Authors' conclusions
The Healthy Neighborhoods Program (HNP) reduced the costs and improved asthma morbidity.

CRD COMMENTARY - Selection of comparators
The comparator was no programme since this was a before-and-after study.

Validity of estimate of measure of effectiveness
The effectiveness data were obtained from a single study. The study design was not appropriate for the hypothesis as there was no comparator group of people. Also, the intervention varied between health departments. There was incomplete information on the health status of the asthmatics to enable an accurate assessment of the intervention. Consequently, it is not possible to know if the study sample was representative of the study population. The analysis of effectiveness was not handled credibly since the measure of asthma morbidity was based on use of the hospitals, rather than a measure of health status, and so could have resulted from the asthma patients behaving differently towards the health system. There were no other sources for the effectiveness data.

Validity of estimate of measure of benefit
The authors did not derive a summary measure of health benefit. The health benefits are therefore those associated with the effectiveness outcomes.

Validity of estimate of costs
From the health perspective adopted (i.e. the government), the authors did not include all of the costs. They were aware that many costs were not included, such as reductions in emergency room visits, deaths, unplanned visits to the doctor, and changes in school and work attendance. The costs that were included (i.e. those of the programme and of an average hospital admission for asthma) meant that the data used to calculate the costs were very limited. Since the programmes were very different in different health departments, and their costs were also different, any attempt to generalise across departments is very unwise. Since the costs were not broken down into their components, there is no way of explaining the difference in costs between health departments. The resource use quantities were taken from a single study, while the prices were taken from the authors' setting. No statistical, sensitivity, or any other kind of analysis of the quantities or prices was carried out. No other source was used for the prices.

Other issues
The authors compared their results with the findings from other studies. The issue of generalisability to other settings was not addressed. The authors did not present their results selectively but their conclusions do not reflect the scope of the analysis. For instance, the intervention was not homogeneous, data on the participants in the programme were incomplete, there was no control group, and the cost data were incomplete.
Implications of the study
The authors recommended that future research should employ better and more consistent measures of asthma morbidity.

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