Tuberculosis prevention: cost-effectiveness analysis of isoniazid chemoprophylaxis
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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
Tuberculosis (TB) prevention.

Type of intervention
Primary prevention

Economic study type
Cost-effectiveness analysis and cost-utility analysis.

Study population
Men aged 20, recently infected with tubercle bacillus and thus at high risk and men aged 55, with no risk factors other than long term presence of tubercle bacillus (low risk).

Setting
The study was carried out in the USA.

Dates to which data relate

Modelling
Epidemiological cohort model (model of survival and disease).

Measure of benefits used in the economic analysis
Lives saved, Life-years gained and Quality-adjusted-life-years. No classification was used for the health state description. Sackett and Torrance health utility valuation was used. Author values were used to assess the health states.

Direct costs
Direct costs were to the health service and include: physician visits, drugs, treatment of active TB (hospital and non-hospital), and hepatitis as side-effects. Price information related to 1985.

Currency
US dollars ($). In the DH Register of Cost-Effectiveness Studies, the original results were converted to UK pounds sterling (£) using GDP purchasing power parities and reflated to 1991 using the NHS pay and prices index.
Sensitivity analysis
For TB prevention for men aged 20, recently infected with tubercle bacillus and thus at high risk sensitivity analysis was carried out using the method of single parameter variation. For TB prevention for men aged 55, with no risk factors other than long term presence of tubercle bacillus (low risk) no sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
Incremental QALYs (benefits discounted at 5%) for: TB prevention for men aged 20, recently infected with tubercle bacillus and thus at high risk were 0.0101; TB prevention for men aged 55, with no risk factors other than long term presence of tubercle bacillus (low risk) were 0.0109. Outcome duration was life long. Treatment side-effects were included.

Synthesis of costs and benefits
Intervention and cost durations were life long. TB prevention for men aged 20, recently infected with tubercle bacillus and thus at high risk was a dominant strategy versus no intervention yielding positive life year gained and savings of resources (costs and benefits discounted at 5%). TB prevention for men aged 55, with no risk factors other than long term presence of tubercle bacillus (low risk) yielded 11,135 per life-year gained (costs and benefits discounted at 5%) and 629 (costs and benefits not discounted). Incremental cost per life saved for: TB prevention for men aged 55, with no risk factors other than long term presence of tubercle bacillus (low risk) was 30,878 (costs discounted at 5%) and 5131 (costs not discounted). TB prevention for men aged 55, with no risk factors other than long term presence of tubercle bacillus (low risk) yielded 10,196 per QALY gained (costs and benefits discounted at 5%). Sensitive parameters for TB prevention for men aged 55, with no risk factors other than long term presence of tubercle bacillus (low risk) were isoniazid hepatitis mortality (a side-effect more common in the elderly); cost and effectiveness of isoniazid chemoprophylaxis. The range of incremental cost per life year for: TB prevention for men aged 55, with no risk factors other than long term presence of tubercle bacillus (low risk) was 11,135 (baseline, costs and benefits discounted at 5%), with lowest value 425, and highest value 78,056. With extra health costs following survival: Cost/Life saved was 41,800 (costs discounted at 5%), and cost/life year, was 15,100 (costs and benefits discounted at 5%).

CRD Commentary
(This commentary was not written by CRD, but by the authors of the DH Register.) 1) The quality of medical evidence, determining the values of critical parameters in the model, is unreported. 2) The sensitivity analysis reflects considerable uncertainty. 3) There were no health omissions.

Bibliographic details

PubMedID
3134928

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Age Factors; Cost-Benefit Analysis; Drug-Induced Liver Injury /etiology /mortality; Humans; Isoniazid /adverse effects /therapeutic use; Life Expectancy; Male; Middle Aged; Risk Factors; Tuberculin Test; Tuberculosis /diagnosis /mortality /prevention & control

AccessionNumber
21995005240