Incidence-Based Versus Prevalence-Based Economic Evaluations for the Assessment of New Health Care Interventions

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BACKGROUND
- An incidence-based economic evaluation follows a disease cohort for the duration of the disease and estimates discounted costs and health gains with alternative interventions.
- A prevalence-based economic evaluation provides estimates of costs and health benefits for the total population for 1 year or cumulated over a longer time horizon.

METHODS
- This poster presents a comparison of incidence-based and prevalence-based economic evaluations.
- The comparison includes adherence to the economic principles, population included, time horizon, inputs, outcomes measures, and usefulness to decision makers.

RESULTS
Table 1 presents a comparative analysis of the two methods for economic evaluation.

Table 1. Comparison of Characteristics of Incidence-Based and Prevalence-Based Economic Evaluation

<table>
<thead>
<tr>
<th>Model Characteristics</th>
<th>Incidence-Based Economic Evaluation</th>
<th>Prevalence-Based Economic Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black economic theory</td>
<td>Utility maximization</td>
<td>None</td>
</tr>
<tr>
<td>Threshold value</td>
<td>Societal willingness to pay</td>
<td>GDP/quality-adjusted life-years (QALYs)</td>
</tr>
<tr>
<td>Population</td>
<td>Single cohort; vaccine is representative of different population subgroups</td>
<td>Total population or population subgroup</td>
</tr>
<tr>
<td>Time horizon</td>
<td>Duration of treatment impact on the single cohort</td>
<td>Time horizon, inputs, outcomes measures, and usefulness to decision makers</td>
</tr>
<tr>
<td>Treatment comparators</td>
<td>Current standard of care compared with a new intervention</td>
<td>Current interventions compared with a new intervention</td>
</tr>
<tr>
<td>Market share</td>
<td>100% with each comparator</td>
<td>Generally does not vary with market share of the new intervention</td>
</tr>
<tr>
<td>Indirect health effects of interventions</td>
<td>Generally not considered</td>
<td>Generally considered</td>
</tr>
<tr>
<td>Cost-changes when first approved</td>
<td>Not considered</td>
<td>May be considered</td>
</tr>
<tr>
<td>Update/coverage</td>
<td>Because only direct effects are considered, an update may have an effect on the results</td>
<td>If indirect effects are included, update/coverage impacts the results</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Cumulative costs for single cohort for chosen time horizon; annual or cumulative population costs and incremental costs and QALYs measured in natural units or QALYs for chosen time horizon; ratio of costs to effectiveness; costs may vary for population subgroups</td>
<td>Annual or cumulative population costs and incremental costs and QALYs measured in natural units or QALYs for chosen time horizon; ratio of costs to effectiveness; costs may vary for population subgroups</td>
</tr>
<tr>
<td>Common usage</td>
<td>For new interventions, prophylaxis, or on-going programs</td>
<td>For new or ongoing programs</td>
</tr>
<tr>
<td>Value to decision makers</td>
<td>Estimates the efficiency of a therapy compared with a standard of care for target cohorts</td>
<td>Estimates the efficiency of a therapy compared with a standard of care for target cohorts</td>
</tr>
</tbody>
</table>

Table 2 presents two examples of the inputs and outcomes for an incidence-based and a prevalence-based economic evaluation.

Table 2. Comparison of Incidence-Based and Prevalence-Based Economic Evaluation

**Example 1:** Economic Evaluation of Prasugrel in ACS/Bypass PCI

**Model Characteristics**
- Population: 180,000 12-year-old girls;
- Vaccine program versus no vaccine program.

**Economic Indicators**
- Vaccine program costs $100,000; economic evaluation.
- Cost per QALY gained estimated using cumulative 10-year costs and cases of ICC.

**Value to the decision maker**
- Efficiency of vaccination compared with a cohort not vaccinated.
- Societal willingness to pay for threshold value.

**REFERENCES**

**CONTACT INFORMATION**
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CONCLUSIONS
- Together, incidence-based and prevalence-based economic evaluations provide a complete picture of the efficiency and affordability of a new intervention, and both should be completed for all types of health care interventions.
- Because the theoretical foundations for the two types of economic evaluation are different, it is not appropriate to compare directly the results from an incidence-based economic evaluation to the results from a prevalence-based economic evaluation.
- Incidence-based economic evaluations cannot readily take into account market share or indirect effects from new interventions such as herd immunity.
- Prevalence-based economic evaluations might be of greater use for health care decision makers than incidence-based economic evaluations because, in addition to estimates of value for money, they provide estimates of budget impact and population health impacts and allow direct comparison of all types of health care interventions.
- However, threshold value based on economic principles are not always applied for the use of the prevalence-based approach.