How have quality checklists improved the quality of published economic evaluations? An example of venous thromboembolism (VTE) prophylaxis

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Background

A number of health economic evaluation (EE) standards have been developed to help journal editors to assess the quality of the submitted manuscript or to support model quality assessments:
- Generic quality checklists (e.g. Drummond et al. 1996[1]):
  - Country-specific guidelines for submissions to the health technology assessment (HTA) agencies: e.g. NICE Reference Case[2]:
  - Disease-specific recommendations (e.g. Sullivan et al. 2003[3]) for VTE prophylaxis.

Objective

We assessed if the existence of the EE checklist and guidelines have improved the quality of published EE.

Methods

Systematic literature review process search
- The evaluation was performed for a single therapeutic area, VTE prophylaxis in total hip and knee replacement, to prevent disease-related morbidity.
- VTE prophylaxis in total hip and knee replacement has been proven to reduce the short-term (acute) risk of deep-vein thrombosis (DVT) or pulmonary embolism (PE) during hospitalisation as well as within a few months of discharge. In addition, by avoiding both symptomatic and asymptomatic cases of VTE, prophylaxis reduces the risk of a long-term (chronic) complication of DVT, such as post-thrombotic syndrome and recurrent VTE.
- A systematic search of Embase, Medline, Cumulative Index to Nursing and Allied Health (CINAHL) and Econlit was conducted in July 2010, which encompassed the period from 1966 to June 2010. Further publications were identified via hand search.
- All publications that reported the results of EE were included for the detailed review irrespective of the type of evaluation, interventions, methodology or country.
- Publications were excluded if they were not available in English.

Results

Analysis
- The quality of the published articles were evaluated using 3 different types of EE guidelines across selected key recommendations (Table 1):
  - All identified articles were reviewed against the selected disease-specific recommendations published by Sullivan et al. 2003[3]:
  - A subset of the articles for the UK were evaluated in regards to their adherence to the Drummond quality checklist (1996)[1]: The Drummond checklist contains 26 questions.
  - Initially, the adherence to the selected items of the NICE Reference Case 2003[2] was only performed for the UK studies.
- However, due to the perceived important role of NICE in setting international standards in conducting EEs, all 67 articles were subsequently reviewed against the NICE Reference Case [2].
- The impact of the guidelines were checked by comparing selected methods (parameters) used before and after the introduction of the EE guidelines:
  - <2000 and >2000 for Drummond checklist (1996[1]).

Table 1. Summary of the guideline recommendations used in the analysis

<table>
<thead>
<tr>
<th>Guidelines</th>
<th>Parameters checked</th>
<th>Guideline Recommendation</th>
<th>Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sullivan et al. 2003[3]</td>
<td>Type of VTE events</td>
<td>Intraoperative (intra-op)</td>
<td>All</td>
</tr>
<tr>
<td>Drummond checklist 1996[1]</td>
<td>Time horizon</td>
<td>Both the acute (from surgery to 2 months) and chronic (from 4 months up to 5 years) phases</td>
<td>UK</td>
</tr>
<tr>
<td></td>
<td>Discount rate</td>
<td>3.5% for both benefits and costs</td>
<td>UK</td>
</tr>
<tr>
<td></td>
<td>Type of EE</td>
<td>Cost-effectiveness (CEA)</td>
<td>UK</td>
</tr>
</tbody>
</table>

Sullivan’s recommendations
- The type of economic evaluation (symptomatic vs. both symptomatic and asymptomatic).
- There is a negative correlation between the publishing of Sullivan’s recommendations and the type of VTE events considered in the EE.
  - Only 12% of studies published after 2004 accounted for symptomatic VTE events (with a confirmed diagnosis with USG or venography), as recommended by Sullivan – the majority (63%) of studies included both symptomatic and asymptomatic VTE events.
- However, this seems to be independent on the methodology used in the model as the VTE event detection is driven solely by the clinical trial design.

CONCLUSIONS

- Although guidelines and checklists seem to be associated with the improvement of the quality of published economic studies, it is difficult to assess whether the Drummond quality checklist has contributed any significant improvements to the quality of published EEs. However the formal HTA guidelines (NICE Reference Case) appear to have a direct impact on the methodology used in published EEs in the UK. This reinforces the association between HTA guidelines and quality improvements.
- There is a need to strengthen the awareness of editors on the availability of the checklist guidelines and checklists for EE.

References