Background

- Guideline developers frequently encounter situations that require a comparison of multiple interventions on a given or similar topic when addressing a health topic.
- To effectively provide guidance to decision-makers and guideline users, guideline groups should consider all reasonable interventions, including treatments and tests, to provide the best possible guidance for a given health issue.

This process begins with the generation of a healthcare question identifying the population, interventions, comparisons and outcomes (PICOs) that is answered by a guideline recommendation [1]. Over 100 organizations globally, including the World Health Organization (WHO) and the European Commission, use the GRADE (Grading of Recommendations, Assessment, Development, and Evaluation) system to develop these guideline recommendations [2].

With the advent of Evidence to Decision (EtD) frameworks, the GRADE Working Group has generated a transparent and methodical approach to move from evidence to decision-making. The EtD criteria (3–4) including: priority, balance of effects, certainty, values/preferences, resources required, cost effectiveness, equity, accessibility and feasibility.

Guideline groups should consider network meta-analysis for the evidence in GRADE guidelines where it is appropriate and feasible [7, 8].

To date, no methodology has been proposed for the comparison of multiple interventions in order to make healthcare recommendations. Multiple intervention comparison (MIC) refers to comparing all important interventions against one another and across the evidence domains, in order to support the development of a final recommendation.

Methods

- We first identified the need for an approach to support MIC during a Guideline panel meeting of the European Commission initiative on Breast Cancer (ECBC) Guidelines Development Group.
- We formed a working group (WG) of guideline stakeholders to develop this approach, and subsequently a software tool for implementation. We met as a WG four times via web conference to discuss scenarios that had arisen in the guideline work of the WG experts to inform the development of a framework.
- Each scenario was considered, and common needs were aggregated to inform the requirements for a software tool to implement the framework.
- We conducted user testing of the software tool and implemented the tool in two real medical groups.
- We also applied it retrospectively to an additional guideline situation, where an NMA was available to consider a range of situations that guideline developers may face.

Results

- The MIC approach is presented in Figure 2. The approach relies on the comparison of evidence profiles and evidence to decision (EtD) frameworks through GRADE for comparing multiple interventions. As has been described elsewhere, the GRADE guideline approach begins with guideline planning and topic prioritization [9]. The GRADEpro tool is presented in figure 2.
- Our framework suggests considering multiple intervention comparisons at the PICO formulation stage so that the guideline group is aware of the need to compare multiple interventions at the outset. This will facilitate planning, and the potential inclusion of an NMA during the evidence synthesis stage. However, the approach we have developed, any corresponding tool, are flexible and can be used at any stage of the guideline process.
- The approach was hypothetically piloted in a prior guideline topic, considerations for the decision-making process.

Conclusions

- The MIC approach allows guideline groups to transparently and critically assess multiple options at the same time in order to enable, in an easier manner, the development of a final recommendation for a given health topic. Ideally, GRADE guidelines within the EtD criteria would facilitate the decision making by a guideline panel.
- Further testing of the approach and software tool in guideline groups will allow a better understanding of its impact on the decision-making process.

Figure 1. Approach to Multiple Intervention Comparison

1. Planning & Priority Setting
   Consider all possible interventions

2. Evidence Synthesis of All Interventions
   Conduct MIC if possible and feasible

3. EtD Frameworks
   Pairwise vs. simultaneous consideration of all interventions across all EtD domains.

4. Assess Transitivity of EtD Criteria Across Multiple Comparisons
   Consider comparability of populations, comparisons and outcomes.

5. Rating of Each Intervention Across EtD Criteria
   Assign 1-5 stars to indicate rating of interventions in each EtD criteria.

6. Recommendation(s)
   For the health guideline topic, generate one or more recommendations across all possible interventions.

7. Dissemination
   Provide a transparent and clear rationale for guideline users.

Figure 2. GRADEpro Multicomparsion Module

References


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