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Practical Considerations for Developing PICO Statements for Humanistic Reviews—How to Get It Right

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Background & Objectives

- Burden of illness (BOI) literature reviews cover topics such as epidemiology, quality of life (QoL) and the economic impact of disease. The PICO (Population, Intervention, Comparator, Outcome) statement focuses on designing clinical reviews and while variations of this framework exist, it remains the most widely accepted framework for establishing the scope of systematic reviews. As the volume of evidence available for humanistic reviews has increased dramatically over recent years, identifying specific guidance and/or considerations on literature review approaches to address the wide, and often heterogeneous evidence in BOI reviews is required.
- This study aimed to 1) review existing guidelines for developing eligibility criteria for BOI reviews and how they are applied in practice in humanistic reviews, including measures of validity of these approaches; and 2) provide practical considerations when designing humanistic reviews using elements of existing guidance along with practical experience of conducting such reviews.

Conclusions

- This study did not identify any guidelines specific to humanistic reviews even though understanding the humanistic burden of a disease is fundamental to healthcare decision-making.
- Most of the included literature included the PICO framework in their designs.
- The systematic reviews demonstrated low inclusion rates and highlighted the heterogeneity among studies (regarding population, outcomes, study designs, and effect measures) as the main barrier for carrying out quantitative syntheses.
- The volume of evidence for humanistic reviews has increased dramatically over recent years, but guidance on targeted approaches for developing search strategies is required.
- Detailed recommendations provided herein on the development of PICO statements for humanistic burden reviews will also help reviewers in preparing data extraction templates aimed for complex evidence syntheses for these types of systematic reviews.
- Effective implementation of these recommendations depends on the indication of interest and the availability of evidence; therefore, reviewers should develop evidence maps while screening the literature that will allow transparent prioritization of most relevant evidence to answer the specific research question.

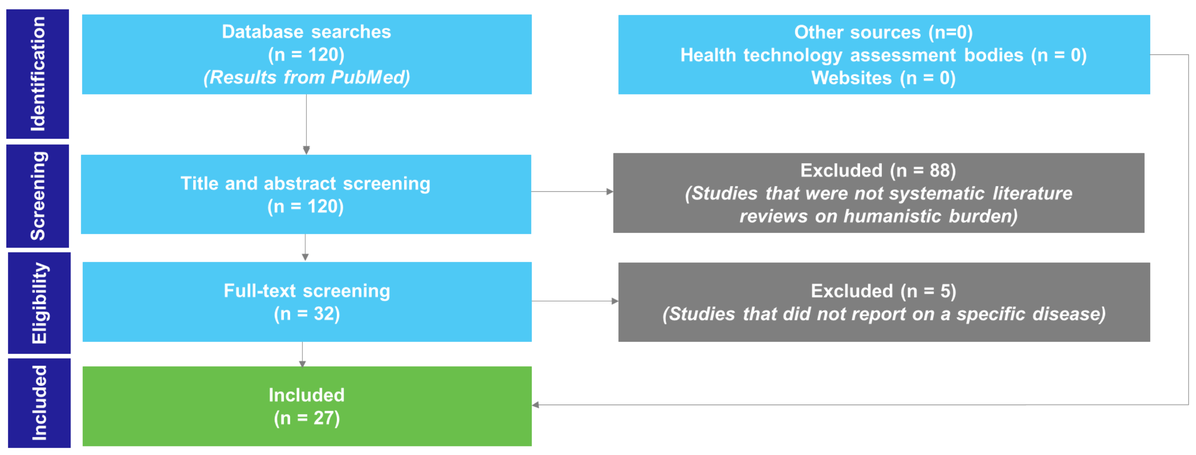
Methods

- A targeted search of health technology assessment (HTA) websites (National Institute for Health and Care Excellence[1] and Canadian Agency for Drugs and Technologies in Health[2]) and methodological bodies (Cochrane,[3] and the Patient-Centered Outcomes Research Institute[4]) was performed to identify any guidance frameworks specifically for conducting BOI literature reviews.
- PubMed was systematically searched for humanistic reviews (all indications) published from 2017 to the present to determine what, if any, guidance specific to humanistic reviews was used while developing research questions. The titles and abstracts of reviews identified via the database search were screened and included if their primary objective was to assess the humanistic burden of a specific disease.
- Information was extracted on how the PICO statement was developed, parameters of the search strategies, and review limitations specific to the methodology approach.
- The inclusion rate among eligible reviews was calculated (by dividing the number of included studies by the number of records screened) in order to determine the sensitivity of the searches and screening criteria that were used.
- The results of this review and the authors' experiences were used to guide the development of PICO statements for humanistic burden reviews.

Results

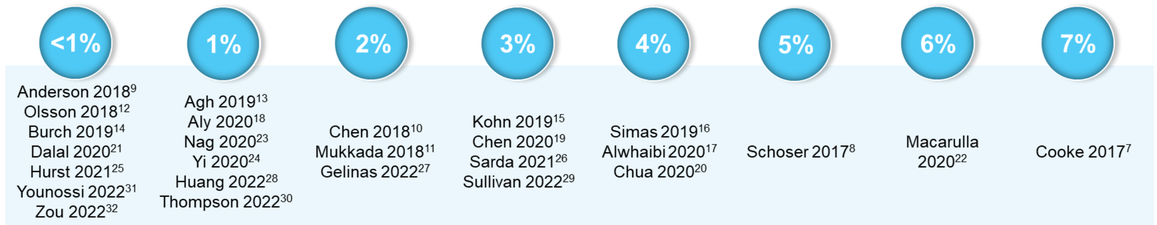
- The flow of studies for this review is shown in Figure 1.[5] No guidance documents or frameworks were identified through the manual searches of the websites of HTA organizations and methodological bodies.

Figure 1. PRISMA flow diagram



- The database search identified 120 reviews of which 27 humanistic reviews were included. All 27 reviews used the PICO framework and the proportion of eligible studies ranged from <1% to 7% (Figure 2), indicating low sensitivity of search strategies. One outlier study adopted a narrow search that reported an inclusion rate of 37%.[6]

Figure 2. Inclusion rate of eligible humanistic systematic reviews



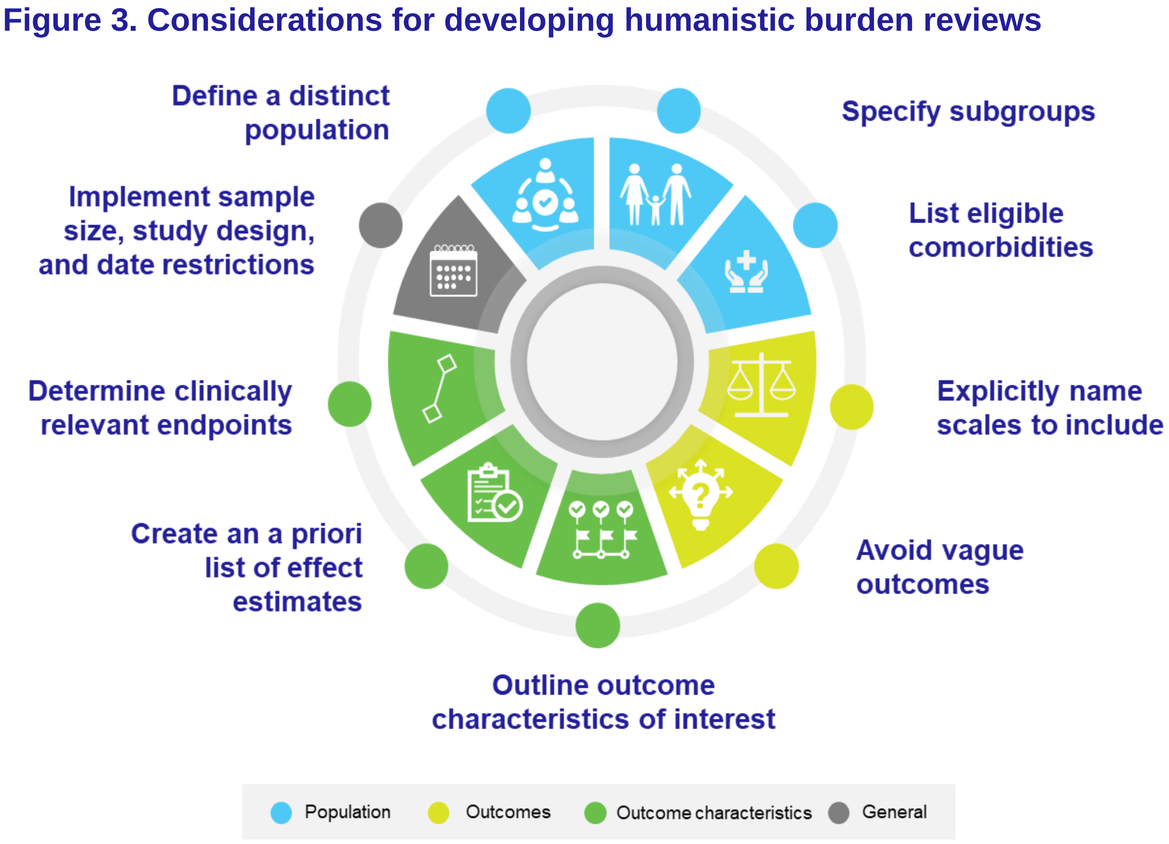
Note: The inclusion rate among eligible systematic reviews was calculated by dividing the number of included studies by the number of records screened. One outlier study with an inclusion rate of 37% is not reported here.

- Most included studies used broad population- and outcome-related terms in their searches and rarely included syntax around disease severity, age limits, disease-specific patient-reported outcome tools, or other unique terms to help narrow the results. Approximately 54% (n = 14) of the reviews did not consider disease severity or specific humanistic/QoL scales in their PICO criteria or search syntax.

Results (cont.)

- Most studies were excluded due to ineligible populations, or outcomes suggesting that more specific search terms and eligibility criteria might have reduced the number of ineligible studies. Five reviews considered disease severity and specific scales of interest to develop their inclusion criteria but indicated heterogeneity in study designs and sample sizes as an important limitation for synthesis. Variation in populations and outcome measures were consistently reported as significant limitations for data synthesis.
- The identified reviews excluded most of the records captured by their respective database searches indicating that the use of broad population- and outcome-related terms while developing the PICO criteria likely led to search strategies that captured large volumes of irrelevant literature. Considerations for reviewers to increase the sensitivity of searches and guide selection criteria are presented in Figure 3.

Figure 3. Considerations for developing humanistic burden reviews



- **Population:** A distinct population that accounts for disease severity, age, and clinically relevant subgroups should be defined. The importance of comorbidities should be determined at the outset and a list of relevant conditions should be specified in the PICO criteria. Very restrictive terminology might exclude key studies.
- **Outcomes:** Reviewers should decide whether to prioritize generic or disease-specific health-related QoL scales. Since different versions of the same scales also exist, the importance of older and/or condensed versions of these scales should be weighed in the context of the indication. The inclusion of vague outcomes (e.g., "functional status") should be avoided as these might be difficult to extract accurately and synthesize in the results. These recommendations should account for clinical and contextual factors and may not be applicable across all types of indications and populations.
- **Outcome characteristics:** For quantitative data, the relevance of effect measures should be determined based on the research question. Timepoints should be based on clinical relevance (i.e., cross-sectional vs. longitudinal data only) as well as the importance of overall scale scores over domain-specific scores. An a priori list of effect estimates (e.g., mean scores, change from baseline, proportion of patients) should be created and the types of scale respondents (e.g., patients, clinicians, caregivers) should be considered.
- **General:** An "evidence map" can be created during full-text screening to record important characteristics at the study level that may facilitate prioritization criteria before data extraction. This will allow for transparency in decision-making and can help implement contextually relevant restrictions such as sample size and study design limits.

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