

Improvement evident but still necessary in clinical practice guideline quality: a systematic review

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Abstract

Objective: To review the quality of clinical practice guidelines (CPGs) from a wide range of health care topics and report any changes seen since 1992.

Study Design and Setting: A literature search in MEDLINE, EMBASE, Web of Science Core Collection, and BIOSIS was conducted in London, Ontario, Canada. Publications were screened to identify those assessing the quality of CPGs using the Appraisal of Guidelines, Research and Evaluation (AGREE) II instrument. Data were gathered regarding year of publication, institution type, health topic, country of origin, domain scores, and final recommendation.

Results: Twenty-five studies met the inclusion criteria. AGREE II scores from 415 individual CPGs published between 1992 and 2014 were obtained. Domain scores increased significantly over time, and the proportion of guidelines being recommended based on AGREE II assessment was significantly greater after 2010. Domain scores in *Applicability* and *Editorial independence* had no significant effect on a CPG's final recommendation, whereas other domains had a significant effect. Finally, international development groups produced CPGs with significantly higher scores.

Conclusion: This review found a steady improvement in CPG quality over time. This is particularly evident in guidelines published after 2010. However, certain domains that are integral to the methodological quality of CPGs remain unsatisfactorily low. © 2016 Elsevier Inc. All rights reserved.

Keywords: Guidelines; Clinical; AGREE; Quality; Appraisal; Policy

1. Introduction

Influencing almost all fields of health care, clinical practice guidelines (CPGs) aim to improve the quality, consistency, and effectiveness of care by applying evidence-based medicine and providing health care practitioners with expert summaries of the most recent evidence [1]. The purpose of CPGs is to bridge the gap between clinical research and clinical practice and should therefore be based on the best scientific evidence and developed using the most rigorous methodology. Since the 1980s, the number of CPGs has increased dramatically. However, over the past

25 years, evidence suggests that CPG quality may be highly variable, if not low in general, and the rigor with which CPGs follow standardized development methods is unsatisfactory [2–5]. It was therefore prudent for a common, widely accepted, and standardized method to evaluate CPGs to be developed.

An international collaboration, the Appraisal of Guidelines, Research and Evaluation (AGREE), created a tool that can be used to evaluate the methodological quality of CPG development. The newest version, the AGREE II instrument, was released in 2010 and is the only appraisal tool that has been developed and validated internationally [6,7]. It provides a standardized framework consisting of a semiquantitative scoring system involving 23 items over six domains of methodological quality: *Scope and purpose*, *Stakeholder involvement*, *Rigor of development*, *Clarity of presentation*, *Applicability*, and *Editorial independence*.

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What is new?

- AGREE II quality scores for 415 clinical practice guidelines from multiple medical disciplines have been consolidated and analyzed.
- Clinical practice guideline quality significantly increased from 1992–2014.
- The proportion of clinical practice guidelines being recommended for use by reviewers was significantly higher after 2010.
- Additional improvement is required for AGREE II quality domains Applicability and Editorial Independence.

The updated AGREE II instrument is an evolution of the original AGREE. Several changes were made and are outlined in the AGREE II technical document [8].

The AGREE II instrument and its predecessor have been prominent in the literature for over a decade, thus giving CPG developers a viable and effective framework from which to base their final product on. Unfortunately, concerns regarding suboptimal quality, a paucity of supporting evidence, the exclusion of relevant stakeholders from the development process, compromised editorial independence, and a lack of CPG applicability persist [9–11]. These concerns may be negatively affecting the uptake, utilization, and efficacy of CPGs in their health care domains [12]. The purpose of this study is to review the quality of CPGs spanning many different health care topics published since 1990 to analyze trends in the quality of guideline development and assess the potential effect of the availability of the AGREE II instrument on CPG quality.

2. Methods

2.1. Literature search and study selection

A predefined search strategy was used to obtain potentially relevant literature from the MEDLINE, EMBASE, and Web of Science Core Collection and BIOSIS databases. The search strategy used only terms relating to the AGREE II instrument and CPGs to target articles that used the AGREE II instrument to review CPGs from any medical field. In addition to database searching, a bibliographic list of studies citing the AGREE II instrument (list maintained by the AGREE trust and available for download at <http://www.agreetrust.org/resource-centre/citations-of-core-publications/>) was used to source additional potentially relevant studies. References obtained from the database searches and the AGREE trust's bibliographic list were organized using EndNote X7 (Thomson Reuters, New York, NY, USA) and imported into the online systematic review software

for reference management and screening, DistillerSR (Evidence Partners, Ottawa, Ontario). Search strategy was initially run on October 12, 2015, and rerun for a last time on June 17, 2016, to retrieve more recent publications for inclusion in our analysis. The bibliographic list maintained by the AGREE trust was last searched on June 17, 2016.

Extracted publications underwent title and abstract screening during which articles were included based on a predefined set of inclusion criteria: (1) full text is available in English and (2) publication in a peer-reviewed journal. After title and abstract screening, full texts were acquired, and a more in-depth screening was performed using the following inclusion criteria: (1) complete AGREE II scores (all six domains and final recommendation) of one or more CPGs were reported and (2) AGREE II scores were generated by two or more independent reviewers. Three authors (J.J.A., A.M.G., and R.S.I.) assessed all abstracts and full-text articles for inclusion. Any disagreement between authors was resolved by consensus. Methods were in compliance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2009 standards [13].

2.2. Data collection

Three authors (J.J.A., A.M.G., and R.S.I.) collected data on the following characteristics of each review: search methods for included CPGs, number of AGREE II appraisers, and the interobserver agreement achieved by each group of reviewers. The following information for the included guidelines was collected from each review: year of publication, institution, CPG health topic, country of origin, AGREE II domain scores (*Scope and purpose, Stakeholder involvement, Rigor of development, Clarity of presentation, Applicability, and Editorial independence*), and the CPGs' overall assessment (recommended, recommended with modifications, or not recommended). If any included reviews had incomplete data, authors were contacted for further information.

2.3. Data analysis

The correlation between the different domain scores and overall assessment was analyzed using the Pearson coefficient. For the purposes of this analysis, recommended and recommended with modification were grouped into a single recommended category to dichotomize the data into two categories: recommended and not recommended. The recommendations were compared based on CPG date of publication, location of publication, and type of development organization by analysis of variance and post hoc (Duncan) when appropriate. To analyze the trends in domain scores and final recommendations over time, CPGs were grouped based on publication date into four categories (1990–1999, 2000–2004, 2005–2009, and 2010–2015) and analyzed using the Kruskal–Wallis test and Mann–Whitney test. The authors explored the potential

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