Evidence-based clinical guidelines use summaries of critically appraised, current evidence to provide readily available recommendations for clinical decision-making. When clinicians use evidence-based guidelines, patient outcomes improve, personnel have more positive attitudes, and organizations use resources more efficiently [1]. Because new evidence accumulates rapidly, guideline evaluators agree that guidelines need to be periodically updated [2–4].

The terms ‘valid’ and ‘up to date’ are used interchangeably to mean that a guideline includes all relevant, recent, valid evidence and reflects current clinician’s experience as well as patient values and preferences. Possible consequences of using out-of-date guidelines include a clinician’s use of diagnostic studies or treatments that do not provide the best-known outcomes. The scenario one seeks to avoid is harm or unnecessary suffering, hardship, or risk exposure experienced by patients. Although guideline evaluators agree that periodic revision is important, 9 of 18 guideline organizations reported that they lack formal procedures for keeping their guidelines up to date [5]. This observation suggests that effective programs for assuring guideline validity may be important but are challenging to achieve.

To better understand the context, implications, and range of institutional experiences for keeping guidelines up to date, a systematic electronic search of available evidence was performed with a particular focus on the question of minimizing the interval between the publication of important new evidence and the incorporation of that evidence into guidelines. Three relevant publications were identified.

For two guidelines developed and updated in the mid- and late-1990s, respectively, Eccles compares the experience of the original development processes with that of the update processes [6]. The efficiencies of time and effort were not as great as might be expected, and the major costs, which were personnel time, were identical for the two processes. Two factors contributed to this apparent lack of efficiency: the update process was performed in much the same manner as used in developing the original guideline, and, in addition to the evidence update tasks, other activities to improve the guideline quality were undertaken.

In 2000, the Agency for Healthcare and Research Quality (AHRQ) examined a major barrier to timely updates of guidelines, namely the effort involved in literature search and the identification of new evidence. AHRQ funded development and testing of a model to determine when guidelines need updating [7,8]. Shekelle et al. proposed the model based on the assumption ‘that evidence sufficient to invalidate an existing guideline’ would be known to clinical experts and/or discussed in reviews, commentaries, and editorials in major journals of general or specialty interest [7]. Applying this model to 17 guidelines developed by AHRQ, they defined invalid guidelines as those for which ‘New evidence called into question 1 or more principal diagnostic or therapeutic recommendations or new evidence suggested the need for new principal diagnostic or therapeutic guideline recommendations’. They concluded, using survival analysis, that at 3.6 years, about 90% of the 17 guidelines were still valid; this rate dropped to about 50% by 5.8 years. The likelihood of adverse patient consequences by the use of outdated guidelines before the update was not reported.

Investigators at the Research Triangle Institute (RTI) International tested the AHRQ revision model reported by Shekelle and compared it with a ‘traditional’ comprehensive, systematic review. Using six clinical topics for which guidelines had been previously published, RTI compared the two methods in parallel. The Shekelle/AHRQ model was not less time intensive than the traditional method. Consequently, RTI modified the model in iterative phases and obtained efficiencies of time and effort, primarily by eliminating some of the database sources for the literature review. As to the rigor of the evidence search, RTI concluded that, using the modified AHRQ model, all studies that would have influenced the decision to update a recommendation were identified, even though fewer eligible studies (as judged by the review teams) were reviewed [9,10].

Consideration of our own experience with keeping guidelines up to date identified several concerns as to why this matter is problematic. Firstly, it is probable that guideline users expect recent publication dates to trust that care is based on the best available evidence. Clinicians may be concerned when their experience or knowledge of recently published research is not reflected in the current version of a guideline, putting that clinician in the position of following a guideline of unknown validity, making clinical choices that deviate from a locally developed and supported guideline, or spending time searching for current valid evidence.

Secondly, the rate of publication of new studies is increasing, expanding the task of systematically searching and reviewing relevant literature which may raise tensions between proponents of search methods that seek efficiencies and those who favor methods which maintain rigor through comprehensiveness [11]. Another facet of this issue is consideration of the optimum interval for literature searches, ranging from a more-frequent, low-volume search to a less-frequent, high-volume search [12]. Utilizing the AHRQ model may reduce search results to a few letters, editorials and commentaries,
and the original literature to which these refer. However, this method should be further tested to estimate the balance between this limited search and its ability to identify all evidence significant enough to influence the decision to update guideline recommendations.

Thirdly, with finite resources available for guideline development and revision, which may consume similar resources [6], delay caused by these competing objectives contributes to the increasing likelihood that the guideline may become out of date.

Finally, many guidelines in current use were developed before criteria were available to evaluate guideline quality [2]. Efforts to improve quality should not be limited to frequent updates of the underlying evidence review but should incorporate other guideline improvements during the revision process.

As we near the middle of the second decade of prolific worldwide guideline development, the goal of achieving and maintaining high standards for their quality is increasingly important. Testing and sharing efficient guideline review and update methods are required to accomplish that goal.

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References


