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Updating comparative effectiveness reviews: Current efforts in AHRQ's Effective Health Care Program

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Abstract

Objectives: To review the current knowledge and efforts on updating systematic reviews (SRs) as applied to comparative effectiveness reviews (CERs).

Study Design and Setting: This article outlines considerations for updating CERs by including a definition of the updating process, describing issues around assessing whether to update, and providing general guidelines for the update process. Key points to consider include (1) identifying when to update CERs, (2) how to update CERs, and (3) how to present, report, and interpret updated results in CERs.

Results: Currently, there is little information about what proportion of SRs needs updating. Similarly, there is no consensus on when to initiate updating and how best to carry it out.

Conclusion: CERs need to be regularly updated as new evidence is produced. Lack of attention to updating may lead to outdated and sometimes misleading conclusions that compromise health care and policy decisions. The article outlines several specific goals for future research, one of them being the development of efficient guideline for updating CERs applicable across evidence-based practice centers.

Keywords: Systematic reviews; Comparative effectiveness reviews; Updating; Cumulative meta-analysis; Methods; Evidence-based practice

1. Introduction

To maintain relevance, systematic reviews (SRs) need to be regularly updated as new evidence is produced [1,2]. The lack of attention to updating may lead to evidence-based conclusions becoming outdated and sometimes misleading, thus compromising health care and policy decisions. These problems could lead to a waste of resources, provision of redundant or ineffective health care, failure to implement more effective health care, and possibly cause harm. Disseminating the updated reviews will increase the awareness of new findings among relevant stakeholders and the likelihood that new evidence is incorporated into clinical practice. There is little information about what proportion of SRs are in need of updating at any given time, when to initiate updating or how best to carry it out. Although the Cochrane Collaboration has invested substantial effort in preparing updates and keeping SRs up-to-date, other groups have published very few updates. One methodological survey [3], based on 300 SRs indexed in MEDLINE during November 2004, reported that 37.6% of the 125 Cochrane SRs and 2.3% of the 88 nonCochrane reviews were updates.

In the absence of a standard method to determine when or how to update any given SR, some organizations have made recommendations about the frequency with which the evidence base needs to be updated. The Cochrane Collaboration has an established policy that reviews be assessed and updated every 2 years or that a commentary be

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added to explain why this is done less frequently [4]. Updating all SRs based on an arbitrarily defined time interval could result in inefficient use of resources, as SRs from diverse clinical areas will vary in how frequently they need to be updated depending on the pace of developments occurring in a given clinical area.

The US Preventive Services Task Force (USPSTF) has addressed the issue of updating its clinical guideline recommendations [5]. Because of resource limitations, they set priorities and order in which updates are conducted. This process involves a review of clinical evidence often based on evidence from SRs. A committee determines updating priorities based on the public health importance of the topic (burden of suffering and expected effectiveness of preventive services to reduce that burden), the potential for a USPSTF recommendation to affect clinical practice (based on existing controversy or the belief that a gap exists between evidence and practice), and the availability of new evidence that has the potential to change prior recommendations.

The Drug Effectiveness Review Project, the collaboration between the Oregon Evidence-based Practice Center (EPC) and the Center for Evidence-based Policy of Oregon established in 2003 (http://www.ohsu.edu/xd/research/centers-institutes/evidence-based-policy-center/derp/index.cfm), has conducted SRs of comparative effectiveness and safety for drugs of the same class. The updating process has included an annual scan of literature using the same search strategy as for the previous report but limited to MEDLINE. After identified article abstracts are reviewed, a decision is made whether to update the report. If the decision is made to update the report, then key questions for potential modifications are assessed to accommodate new evidence (e.g., new drugs, safety alerts, and new indications). The incorporation of newly identified evidence follows the same methodology as one used for an original review report.

The US Agency for Healthcare Research and Quality (AHRQ) faces a similar dilemma in relation to keeping their evidence synthesis research up-to-date. An important cornerstone of AHRQ's research is the Effective Health Care (EHC) program of which one of its mandates is to produce Comparative Effectiveness Reviews (CERs). A CER is a type of SR that synthesizes the available scientific evidence on a specific topic, beyond the effectiveness of a single intervention, by comparing the relative benefits and harms among a range of available treatments or interventions for a given condition [6]. CERs like other SRs are also susceptible to becoming out-of-date. This article reviews current knowledge and efforts on updating SRs as applied to CERs.

1.1. Why to update CERs

Whether a CER needs to be updated depends on many factors, as several reasons may exist for undertaking an update. The most common reason is to include newly published studies or studies that have been updated with information not previously presented. Newly identified studies may report on newly emerged interventions, devices, technologies, diagnostic tests, procedures, harms, and efficacy outcomes. Updating may be conducted to include delayed publications to minimize the impact of time lag bias or add missing or unpublished data obtained from authors of primary studies [7]. In some cases, the passage of time may bring about new understanding of disease mechanisms that may change the scope of key questions originally asked.

Updates may present a good opportunity to correct various errors or incorporate relevant older evidence in the original CER report, as studies may have been missed by the original searches because of inadequately conducted initial searches or incorrect application of study inclusion/exclusion criteria. In addition, subsequent publications of previously published studies may also provide relevant evidence not presented previously.

1.2. Definition of update

The term ''to update'' means ''to extend up to the present time'' or '' include the latest information'' [8]. Moher and Tsertsvadze [9] proposed a formal definition of update for SRs to mean a discrete event aiming to search for and identify ''new evidence'''' to incorporate into a previously completed SR. Central to updating is the effort to identify such ''new evidence,'' irrespective of date of publication. We take this view to mean any relevant evidence not included in the previously completed review, not just new studies published since the last review. We believe this definition is appropriate, given the purpose of CERs, and it is in keeping with the Cochrane Collaboration's definition [4,10]. The authors explain that a distinguishing feature of an updated review from a new review is that during updating, constituent elements of the originally formulated protocol (e.g., search strategy, eligibility criteria, and key questions) may be retained and sometimes extended/modified to accommodate newly identified evidence (e.g., new intervention, new outcome, or new subpopulation) [9].

2. When to update CERs

The optimal timing for conducting an update for a CER depends on many factors: rapidity of scientific developments in a given clinical area, nature of the health condition in question, and public health importance. No standard methodology exists for assessing the need for updating a review at a given point in time [11]. Conducting periodic literature surveillance [12] and obtaining expert opinion [13,14] are helpful sources for efficiently identifying new relevant evidence to determine when to update.

Surveillance searching is one common technique to monitor emergence of new evidence for the purpose of updating. Although because of efficiency considerations, surveillance search strategies typically are not comprehensive,