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The skills and experience of GRADE methodologists can be assessed with a simple tool

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Abstract

Objectives: To suggest approaches for guideline developers on how to assess a methodologist's expertise with Grading of Recommendations Assessment, Development and Evaluation (GRADE) methods and tasks and to provide a set of minimum skills and experience required to perform specific tasks related to guideline development using GRADE.

Study Design and Setting: We used an iterative and consensus-based process involving individuals with in-depth experience with GRADE. We considered four main tasks: (1) development of key questions; (2) assessment of the certainty of effect estimates; (3) development of recommendations; and (4) teaching GRADE.

Results: There are three basic approaches to determine a methodologist's skill set. First, self-report of knowledge, skills, and experience with a standardized "GRADE curriculum vitae (CV)" focused on each of the GRADE-related tasks; second, demonstration of skills using worked examples; third, a formal evaluation using a written or oral test. We suggest that the GRADE CV is likely to be useful and feasible to implement. We also suggest minimum training including attendance at one or more full-day workshops and familiarity with the main GRADE publications and the GRADE handbook.

Conclusions: The selection of a GRADE methodologist must be a thoughtful, reasoned decision, informed by the criteria suggested in this article and tailored to the specific project. Our suggested approaches need further pilot testing and validation. © 2016 Elsevier Inc. All rights reserved.

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1. Background

The development of clinical practice, health system, and public health guidelines includes determining the direction, strength, and wording of recommendations. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) framework and methods provide an approach to assess the certainty in effect estimates from a

What is new?

Key findings

- There are three main approaches to assessing individuals' Grading of Recommendations Assessment, Development and Evaluation (GRADE) expertise: self-report using a "GRADE curriculum vitae", demonstration of skills using worked examples, and a formal evaluation. We propose that a GRADE CV may be useful and feasible and suggest a set of minimum skills and experience necessary to develop key questions; assess the certainty of effect estimates; develop recommendations; and teach GRADE.

What this adds to what was known?

- This article is the first to provide guidance on how to assess a methodologist's expertise with GRADE.

What is the implication and what should change now?

- To ensure high-quality guidelines, the selection of a GRADE methodologist should be informed by the criteria suggested in this article, tailored to the specific project.

body of evidence and to develop recommendations according to transparent and structured criteria [1]. Organizations and other entities that develop guidelines and have adopted GRADE methods frequently seek external experts to assist with guideline development, including GRADE-related tasks. These individuals are often referred to as guideline or GRADE methodologists. The level of knowledge, skills, and experience of these experts varies, however, and the selection of a methodologist to support a guideline project requires careful consideration to ensure that their guidance on GRADE is correct, their assessments of the evidence transparent and appropriate, and that the recommendations are appropriate. These tasks are all critically important to ensure that patients and populations benefit from implementation of the recommendations contained in a guideline.

There are four general tasks for which GRADE expertise is needed, and the GRADE methodologist may perform one of more of these tasks in a given guideline project:

1. guide the development of key questions (usually in the format of populations, interventions, comparator, and outcomes [PICO]) which underpin recommendations;
2. perform an assessment of the certainty of the effect estimates (i.e., the quality of a body of evidence) derived from one or more systematic reviews;
3. assist a guideline development group to translate evidence into recommendations; and
4. teach GRADE methods.

"High-quality" with respect to GRADE-related tasks can be defined in general terms. The GRADE Evidence Profiles should be without errors; provide a clear and meaningful summary of the evidence for each outcome; and the rationale for the assessment of each domain and for each outcome across domains should be transparent, cogent, and accurately reflect GRADE definitions and concepts. For the translation of evidence into recommendations, high-quality work includes the use of an explicit framework to formulate recommendations; a valid assessment of the certainty of evidence across outcomes supporting a recommendation; concise, actionable recommendations; and a clear rationale statement for the direction and strength of the recommendation, along with qualifying remarks as appropriate.

At the present time, there is no credentialing for GRADE methodologists, no recommended minimum level of experience or training, and no assessment tool or criteria for evaluating and selecting a methodologist. Nor is there any guidance on how to predetermine the quality of work by persons who state that they can "do GRADE." This is a critical issue for organizations that rely on GRADE methodologists to assist with systematic reviews or guideline development, and ultimately for the end users of the guidelines.

There are some data on the value of experience and training when applying GRADE. For judgments of the certainty of the effect estimates for critical and important outcomes, Mustafa et al. [2] demonstrated that with training, masters level health research methodology students achieve an interrater reliability coefficient of 0.31 (95% confidence interval [CI], 0.21–0.42) based on intuitive global judgments and 0.66 (95% CI, 0.56–0.75) using GRADE methods. Similar results were reported among individuals who had extensive experience with GRADE. A pilot study reported an intraclass correlation coefficient of 0.76 (95% CI, 0.5–0.89) with two raters, with higher coefficients for three and four raters [3]. A recent study also reported similar interrater reliability among guideline panelists after receiving two 1-hour lectures on GRADE (kappa statistic 0.68; 95% CI, 0.54–0.84) [4].

2. Purpose and specific objectives

The purpose of this article is to provide guidance on how groups which develop guidelines can help to ensure that a GRADE methodologist has the appropriate level of knowledge, skills, and experience to facilitate development of a high-quality guideline. Our guidance will enable organizations to evaluate the skill set of an individual to achieve the best fit for a given guideline development project.

The specific objectives of this article are to:

1. suggest approaches for guideline developers to assess individual's expertise with GRADE methods and tasks; and to
2. provide a set of minimum skills and experience required to perform specific tasks related to GRADE.

The purpose of this guidance is not to credential individuals; in other words, we are not specifying a threshold of skills, experience, or other criteria by which a potential expert is deemed qualified to perform tasks related to GRADE. We do, however, suggest a set of minimum training and experience for various tasks which will be useful for evaluating the appropriateness of potential GRADE methodologists. Groups developing guidelines must evaluate the information provided by a potential methodologist on a case-by-case basis, in the context of their specific needs.

3. Methods

Given the conclusions of Mustafa et al. [2] that training is associated with increased interrater reliability of GRADE assessments of certainty of the effect estimates, we developed the following recommendations using an iterative, consensus-based process among the authors of this article, all of whom have long-term and in-depth experience with research synthesis, guideline development, and GRADE in a broad range of settings. Consensus was defined as agreement among all members of the subgroup on the major points in this document. When diverse views on minor points persisted after repeated discussions, we present the different perspectives and approaches. The draft document underwent peer review by members of the GRADE Working Group who represent a variety of settings and have varied professional experiences and affiliations. Peer review comments were reviewed and incorporated as appropriate, using the same consensus-based, iterative process.

4. Results

First, we provide general guidance on how to assess expertise in GRADE methods; then, we suggest minimum requirements for performing the main types of GRADE-related tasks. Knowledge, skills, and experience applying GRADE (or any scientific method) can be assessed using one of the following approaches:

1. self-report of training and experience;
2. demonstration of skills using worked examples; and
3. formal, independent evaluation of knowledge and skills.

4.1. Self-report

Assessment using self-report can encompass all four of the GRADE-related tasks mentioned previously and is likely to be the most feasible approach for assessing a GRADE methodologist in most settings. To evaluate self-reported training and experience related to GRADE, we developed a "GRADE curriculum vitae (CV)" or "GRADE CV" containing standardized information. This information can be used to evaluate the suitability of an individual or team for one or more of the four basic tasks related to GRADE and to various types of guidelines.

Table 1 provides a list of items that should be considered for the GRADE CV and the online annex provides a template that organizations can use to assess a GRADE methodologist. Users can modify the requested information in the template, particularly the items related to different types of systematic review questions and guidelines, as applicable to specific contexts and needs (Table 2). Items related to training can be supported by certificates or other records of attendance.

We do not feel that a scoring system should be added to this evaluation tool because there is no suitable weighting system for each question, even within each of the four sections. Each guideline developer will have different needs and may therefore have different criteria. The GRADE CV is intended to provide a framework by which one can think about whether an individual or team might meet the specific needs at hand.

4.2. Demonstration of skills using worked examples

To assess the skills of a GRADE methodologist for the tasks of developing PICO questions and assessing the certainty of the effect estimates (including teaching that task), guideline developers can request that the methodologist submit one or more examples of completed GRADE Evidence Profiles. Alternatively, the evaluator could provide an existing systematic review and request that de novo GRADE Evidence Profiles be produced, although this is more resource intensive. These could focus on specific types of key (PICO) questions or on specific types of study designs, depending on the needs of the guideline developer (see the following). The guideline developer must assess the GRADE Evidence Profiles based on their own knowledge of GRADE methods or alternatively have a GRADE expert assist them.

4.3. Formal, independent evaluation

A formal evaluation of knowledge and skills applicable to all GRADE-related tasks could take the form of a written or oral test or an evaluation of performance at a guideline development group meeting where recommendations are formulated. It also encompasses an evaluation of a de novo worked example of a GRADE Evidence Profile as described previously. Although such an evaluation might be very informative, we do not currently recommend this approach for the following reasons:

Table 1. Recommended training and experience for GRADE-related tasks

Training and experience	Comments	GRADE-related tasks: Develop key questions	Assess the certainty of evidence	Evidence to decision	Teach GRADE
GRADE-specific training					
Attend GRADE workshop(s)	Such experience might be replaced by a thorough knowledge of the published literature on GRADE, by viewing GRADE webinars (http://cebgrade.mcmaster.ca/) and experience using GRADE in systematic reviews and in guideline development (if relevant).	X	X	X	X
Attend GRADE Working Group meetings	These meetings occur 2-3 times per year and inform participants of new methods and approaches, current controversies, and potential solutions and provide a network of colleagues available for consultation.	—	—	—	X
Read the GRADE series in the *Journal of Clinical Epidemiology*	Individuals performing GRADE-related tasks of any sort should have in-depth knowledge of all articles in this series.	X	X	X	X
Work or train at, or in collaboration with, a GRADE Center	Training or close collaboration with a GRADE Center for extended periods provides individuals with skills and experience.	—	—	—	—
View GRADE webinars	These are available at http://cebgrade.mcmaster.ca/ and they are an excellent resource, particularly if a potential GRADE methodologist does not have the opportunity to attend a GRADE workshop. Individuals who teach GRADE will find them particularly useful.	—	—	—	X
Experience with systematic reviews and GRADE					
Perform systematic reviews	All GRADE-related tasks require in-depth knowledge and experience performing systematic reviews. GRADE methodologists should be very familiar with the methods of The Cochrane Collaboration. GRADE methodologists should have independently prepared GRADE Evidence Profiles or Summary of Findings Tables for at least three systematic reviews (or performed at least three systematic reviews that included such profiles or tables).	X	X	X	X
Perform meta-analyses	GRADE methodologists who assess the certainty of the effect estimates should have experience performing meta-analyses.	—	X	X	X
Develop GRADE Evidence Profiles or Summary of Findings Tables	All GRADE-related tasks require in-depth knowledge and experience assessing the certainty of the effect estimates and summarizing effect measures.	X	X	X	X
Have experience with software tools to support the development of GRADE Evidence Profiles	GRADEpro Guideline Development Tool (www.gradepro.org) is freely available and is useful for summarizing evidence and documenting judgments on certainty of the effect estimates and developing recommendations in GRADE EtD Frameworks. Evidence Profiles and EtD Frameworks can be completed without such software, but these tools do facilitate the process.	—	X	X	X
Experience formulating recommendations					
Incorporate data on values and preferences, feasibility, acceptability, and equity into recommendations	Experience collecting, synthesizing, and using data on values and preferences is necessary for assisting groups formulating recommendations. Oversee the development and use of GRADE EtD Frameworks.	—	—	X	X
Incorporate data on resource use into recommendations	Expertise identifying, evaluating, and synthesizing data on cost and measures of economic efficiency (e.g., cost-effectiveness) is essential if resource issues are a key element of the decision-making process of the guideline panel.	—	—	X[a]	X[a]
Chair or co-chair a guideline development meeting	If the role of the methodologist includes this responsibility, then prior direct experience is helpful but not essential. The individual should have experience chairing consensus-based groups making complex decisions.	—	—	—	—

Abbreviation: EtD, Evidence-to-Decision; GRADE, Grading of Recommendations Assessment, Development and Evaluation.

This table lists various types of training and experience (first column) relevant to performing one or more of the four basic tasks related to GRADE. The minimum training or experience which is recommended for each of the four tasks, is indicated with an ''X,'' whereas training or experience, which may be useful but which is not considered essential, is indicated with ''—''. For example, attendance at one or more GRADE workshops is essential to performing all four GRADE-related tasks, whereas attendance at one or more GRADE Working Group meetings is only essential to teach GRADE.

[a] If relevant to the guideline topic.

Table 2. Experience with specific types of evidence and guidelines for GRADE-related tasks

Training and experience	Comments	GRADE-related tasks: Develop key questions	Assess the certainty of evidence	Evidence to decision	Teach GRADE
Have clinical, public health or policy knowledge, and experience related to the specific topic of the guideline	The GRADE methodologist does not need to be a content expert, and this can, in fact, be a disadvantage with respect to achieving an objective evaluation of the evidence. However, the GRADE methodologist must have continual access to a content expert to assist with understanding the key questions, interpreting the body of evidence, and for formulating recommendations.	[a]	[a]	[a]	NA
Assist guideline groups in formulating evidence-based recommendations in clinical topic areas	Ideally, this experience is in a mentored situation, where an experienced GRADE methodologist guides or oversees the work.	–	–	X[b]	X[c]
Assist guideline groups in formulating evidence-based recommendations regarding health care system interventions	Systematic reviews and guidelines related to health care system interventions are often complex and challenging. Relevant experience is thus desirable.	–	–	X[b]	X[b]
Assist guideline groups in formulating evidence-based recommendations in public health	Experience specifically with public health guidelines is desirable, particularly experience with formulating recommendations for diverse populations in national, regional, or global settings. Ideally, this experience is in a mentored situation, where an experienced GRADE methodologist guides or oversees the work.	–	–	X[b]	X[b]
Perform one or more systematic reviews or develop guidelines where the dominant form of evidence was nonrandomized studies	The identification, assessment and synthesis of nonrandomized studies requires additional considerations beyond those relevant to randomized controlled trials, including an assessment of the risk of bias of individual studies and an assessment of potential confounders.	–	X[b]	X[b]	X
Perform one or more systematic reviews or develop guidelines that involved a question of risk or prognosis and GRADE was used	This includes reviews or guidelines that address questions of risk (e.g., chemical exposures or risk associated with lipid levels).	–	X[b]	X[b]	–
Perform one or more systematic reviews or develop guidelines that involved a question of diagnostic test accuracy or value	The development of key (PICO) questions and the synthesis and assessment of evidence related to diagnostic tests have many unique considerations and the GRADE methodologist should have relevant experience.	–	X[b]	X[b]	–
Collect and synthesize data on values and preferences	Such competence in the methodologist can be valuable particularly when the benefits and harms underlying a recommendation are closely balanced or uncertain or when the values and preferences of persons who will be affected by the guideline are likely to be varied or uncertain.	–	–	–	–
Incorporate qualitative data into a systematic review or guideline	This expertise is particularly important when the key (PICO) questions relate to how and when an intervention works (rather than simply if an intervention works), such as questions regarding barriers and facilitators to an intervention.	–	–	X[b]	–
Perform one or more systematic reviews of economic data or performing cost-effectiveness or related analyses	If resource considerations are critical to formulation of a recommendation, then this expertise is essential. A second methodologist with this specific expertise may be needed.	–	–	X[b]	–
Implement one or more guidelines in real-world settings.	The guideline development group should include such expertise, but such competence in the methodologist can be valuable particularly when the benefits and harms underlying a recommendation are closely balanced or uncertain.	–	–	–	–

Abbreviations: GRADE, Grading of Recommendations Assessment, Development and Evaluation; NA, not applicable; PICO, populations, interventions, comparator, and outcomes.

This table lists various types of specialized training and experience (first column) relevant to performing one or more of the four basic tasks related to GRADE. The minimum training or experience which is recommended for each of the four tasks is indicated with an ''X,'' whereas training or experience, which may be useful but which is not considered essential, is indicated with ''–''.

[a] Specific content expertise is helpful but not essential.

[b] If relevant to the guideline topic.

[c] If relevant to the needs of the student.

- It would be challenging to develop a valid assessment tool applicable across cultures, languages, settings, and types of guidelines.
- It would be difficult to identify and maintain resources to implement such testing and to track results.
- It may be challenging to obtain a valid assessment given that a written examination would be "open book" in an era of near infinite electronic resources and instant communication.
- Such a tool would need to be maintained and updated as GRADE methods evolve, and resources would be required to achieve this.
- A test might discourage capacity building, particularly among individuals in low-resource and non-English settings.
- Finally, a formal GRADE assessment tool might engender the proliferation of commercial and other interests that focus on "passing the test" rather than in learning and applying valid scientific approaches.

Any of the three general approaches can be complemented or supported by references in the form of a letter or other communication from an experienced GRADE methodologist or from another group developing guidelines with whom the potential methodologist has trained or worked.

5. Minimum requirements for performing GRADE-related tasks

Depending on which of the four general tasks the GRADE methodologist has been asked to perform, he or she should have the appropriate minimum level of knowledge, skills, and experience. Table 1 indicates these suggested minimum requirements. For performing any task, the GRADE methodologist should have attended at least one full-day GRADE workshop, should have read and fully understand all articles in the GRADE series in the *Journal of Clinical Epidemiology* (http://www.jclinepi.com/content/jce-GRADE-Series), and be familiar with the GRADE handbook found in the GRADE online software (www.gradepro.org). A basic knowledge of statistics, study design, and epidemiology is essential to performing GRADE-related tasks in a high-quality manner. In addition to these basic skills and experiences, additional skills are required to perform each of the GRADE-related tasks.

5.1. Guide the development of key questions

An individual who assists a guideline development group to formulate key questions (usually in PICO format) that will define the scope of the systematic review(s) and underpin the recommendations should, at a minimum, have experience formulating such questions, be familiar with how to assess the certainty of the effect estimates using GRADE, and have prepared at least three systematic reviews that include the type of key questions applicable to the current project (e.g., intervention, diagnostic test accuracy, or prognostic questions). The suggestion of a minimum of three completed reviews is somewhat arbitrary; however, we felt that setting this threshold would help to ensure reasonable experience and thus a reasonable quality of work.

5.2. Perform an assessment of the certainty of the effect estimates

To assess the certainty of the effect estimates for the important and critical outcomes, the GRADE methodologist should meet all the requirements noted previously for developing key questions. In addition, they should have independently prepared GRADE Evidence Profiles or Summary of Findings tables for at least three systematic reviews (or performed at least three systematic reviews that included such profiles or tables). Experience with different types of key questions and different study designs (randomized controlled trials and observational studies) is ideal; however, at a minimum, the GRADE methodologist must have experience performing systematic reviews addressing the type of key question at hand (e.g., a review of intervention effectiveness or diagnostic test accuracy). The methodologist should also be familiar with GRADEpro Guideline Development Tool (www.gradepro.org).

5.3. Assist a guideline development group to formulate recommendations

To optimally assist a guideline development group in formulating recommendations based on a body of evidence, the GRADE methodologist should meet all of the criteria for assessing the certainty of the effect estimates. The methodologist should have participated in a GRADE workshop that included instruction on how to formulate recommendations based on evidence and, in addition, should have first-hand experience developing recommendations, either directly or in collaboration with a GRADE methodologist who has experience teaching GRADE (see the following).

To chair or co-chair a guideline development group meeting, the individual should have accomplished all of the aforementioned criteria, plus those for teaching GRADE. In addition, the GRADE methodologist should have experience chairing or facilitating large meetings on topics related to health care where complex issues are discussed and consensus is required but challenging to achieve.

5.4. Teach GRADE methods

If the GRADE methodologist is going to teach assessment of certainty of the effect estimates using GRADE, he or she should have accomplished all of the criteria noted previously to perform such an assessment and as well should have extensive experience developing GRADE Evidence Profiles or Summary of Findings tables. If the methodologist is going to guide or teach another methodologist how to work with a guideline development group to translate evidence into recommendations, the teacher should also have been directly involved with the development of at least two guidelines involving different types of key questions, including both the preparation and/or oversight of the assessment of the certainty of the effect estimates, and the formulation of recommendations based on evidence. Methodologists who want to teach GRADE should also ideally have participated as a tutor or tutor trainee in a full-day GRADE workshop.

Individuals may not always have the opportunity to be tutored in GRADE at a real-world guideline development group meeting or to have tutored a workshop before being presented with the opportunity to lead such tasks themselves. In such situations, attendance at GRADE workshops where the formulation of recommendations is simulated may be an adequate substitute for real-world experience, along with in-depth knowledge and experience with GRADE and the ability to consult individuals who regularly apply and teach GRADE.

6. Other considerations when assessing the skills and experience of a GRADE methodologist

It is important to evaluate all of the information in the general CV of a potential GRADE methodologist. Does the individual have clinical training and experience? Do they have a degree or experience in public health, trial design and implementation, or program evaluation? What is their training and experience in information science, biostatistics, epidemiology, economic evaluation, or health services research? Depending on the focus of the systematic review or guideline, one or more of these skills may be deemed essential.

As indicated in Table 1, there are types of data and systematic review and guideline questions that require specific expertise, training, and experience to correctly and consistently apply GRADE methods. For some of these areas, such as diagnostic tests or the use of nonrandomized studies, GRADE has specific guidance; however, for others, such as questions of risk or prognosis or the synthesis of qualitative data, GRADE guidance is under development but not yet finalized. For the latter areas, GRADE methodologists and guideline developers face a demanding task as there is appropriate variation in approaches and methods.

Until the GRADE Working Group finalizes methods for these challenging applications of GRADE, we suggest that guideline developers explore the potential methodologist's skills, experience, and comfort dealing with these issues. Developers should discuss proposed approaches with the expert to be sure they are logical, thoughtful, built on existing published GRADE methods, and have face and content validity.

The expertise required for guideline development in public health, health policy, or health care systems is somewhat different from that needed for clinical practice guideline development, although the basic principles are the same. Again, the organization requiring assistance in developing a guideline needs to elicit from the potential GRADE methodologist, their depth of experience, and comfort with these types of key questions and guidelines.

It is important for the GRADE methodologist to have a general understanding of the topic area of the systematic review or guideline. If the GRADE methodologist is not a content expert, he or she needs to have ready access to such expertise and to be familiar with (or quickly become familiar with) the type of data and outcomes, potential sources of bias, along with the controversies, and uncertainties within the topic area. This general understanding is essential for developing key questions, interpreting the evidence, determining the certainty of the effect estimates for each outcome, and in helping to ensure that the summary of the data is presented in a meaningful way. Individuals who have preconceived ideas about the effectiveness of an intervention or what the recommendations should be are not effective GRADE methodologists. This includes, for example, individuals who have led clinical trials or who have published specific viewpoints related to the topic of the guideline.

For some systematic reviews and guidelines, the reviewers and the GRADE methodologists may benefit greatly from experience in the relevant geographic, cultural, and socioeconomic setting of the guideline topic. In addition, for some organizations that develop guidelines such as the World Health Organization, equity of geographic origin of individuals involved in guideline development and gender balance across guideline development teams are important considerations when selecting a GRADE methodologist.

Finally, other features and experiences of the GRADE methodologist are critical for successful development of a guideline. Essential characteristics include the ability to collaborate, ability to build consensus, respect for diverse value systems (whether of the organization developing the guideline, the guideline development group, the guideline end user, or the individuals or populations that will benefit from the guideline), willingness to adopt and adapt new methods as required for the project, and the ability to work efficiently and to meet deadlines.

7. Future research

First and foremost, the GRADE CV needs to be piloted to evaluate the feasibility of its implementation as well as user satisfaction and perceptions about its utility in identifying high-quality GRADE methodologists. This evaluation should be performed in a variety of settings, both those where the evaluator has experience with GRADE and with selecting methodologists, and in settings where the evaluator is new to GRADE methods. In addition to a process evaluation, the correlation between "yes" marks in the GRADE CV and the quality of GRADE work needs to be explored. To do that, we need to develop standards by which GRADE Evidence Profiles and guidelines based on the GRADE approach are evaluated.

Beyond the tool itself, research is needed with regards to the skills and experience necessary to apply GRADE to produce high-quality products, whether GRADE Evidence Profiles or the translation of evidence into recommendations. The following are some potential questions for future research:

1. What characteristics of the GRADE methodologist are associated with high-quality and low-quality Evidence Profiles? Consideration might be given to a number of the factors listed in the GRADE CV, such as attendance at GRADE workshops, training in basic epidemiology, and biostatistics, among others.
2. How does the level of expertise in the content area (topic) of the guideline relate to various outcomes, such as satisfaction of the guideline development group members, a high-quality guideline document, and types of recommendations (e.g., percentage of strong recommendations based on low or very low certainty of the effect estimates)?
3. What are the most efficient and effective methods for building capacity in GRADE-related skills? How can capacity be identified and increased, particularly among low- and middle-income countries, in low-resource settings, and in non–English-speaking regions?
4. Are the minimum criteria suggested for various tasks related to GRADE presented in this article predictive of the quality of GRADE Evidence Profiles, GRADE Evidence-to-Decision Frameworks, the efficiency of guideline development processes, and the quality of the final guideline? Specific outcomes might include satisfaction of the group developing the guideline and of the members of the guideline panel, quality assessment of the systematic review and of the guideline, and measures of efficiency of the development process, among others.

8. Discussion and conclusions

The selection of a GRADE methodologist is one of the most important decisions in any guideline development project that uses GRADE methods. The GRADE CV will help to identify and make explicit the relevant knowledge, skills, training, and experience of potential GRADE experts. Additional information may be useful, such as worked examples of GRADE Evidence Profiles and references.

In GRADE terminology, the certainty of the evidence for our recommendations on how to assess, a priori, the skills and experience of potential GRADE experts is very low, and the strength of the recommendation to use our suggested criteria is "conditional." The user of this guidance must thus interpret this guidance in their individual context and adopt or adapt it to their situation and needs.

Because there is a high demand for expertise in GRADE methods, less well-qualified individuals and teams may be asked to perform work on guideline development. On the other hand, capacity for this work needs to be rapidly identified and built, including opportunities for individuals and teams with less experience. In addition, individuals with geographic, sociocultural, socioeconomic, and other forms of diversity add significant value to guideline development projects. In fact, for many organizations with broad target audiences, such diversity is essential and may even be mandated, such as at the World Health Organization. The processes, procedures, and scientific methods used in the GRADE approach also benefit greatly from the infusion, consideration, and incorporation of new ideas and perspectives. Thus it is essential that new GRADE experts be continually identified, however care must be taken to ensure that the quality of guideline development work is maintained at a high level.

The target audience for the GRADE CV might extend beyond individuals and organizations which are commissioning guideline work. Journal editors could use the relevant sections of the GRADE CV to evaluate potential peer reviewers.

Work needs to continue to identify and build capacity in guideline development using the GRADE approach. Leadership of GRADE needs to continue to ensure the availability of an adequate number of workshops and other training, up-to-date materials and implementation tools, and complete reference materials on GRADE. This work is supported by the GRADE Guidance Group, which was established to provide guidance to the chairs around a wide variety of GRADE issues and to help set GRADE policy and activity directions. GRADE Centers and networks, of which there are now eight, disseminate information on GRADE and guideline development, provide training and support, and develop translations into regional languages. The Cochrane Collaboration also supports the use of GRADE in systematic reviews for the assessment of the certainty of the effect estimates [5] (http://tech.cochrane.org/gradepro) and conducts training in GRADE methods.

Every group developing guidelines and every specific guideline require a different skill set, and the selection of a GRADE methodologist must be a thoughtful, reasoned decision, informed by the criteria suggested in this article, and tailored to the specific project. In addition, the organization developing the guideline must work closely with the GRADE methodologist and have sufficient knowledge to understand and assess their work. Much additional research is needed, however, to better understand the predictors of successful and high-quality guidelines and the essential skills and experience of GRADE methodologists.

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Online Table. The GRADE curriculum vitae

Training or experience	Details	Comments
GRADE-specific training		
Attend GRADE workshop(s)		
Attend GRADE Working Group meetings		
Read the GRADE series in the *Journal of Clinical Epidemiology*		
Work or train at, or in collaboration with, a GRADE Center		
View GRADE webinars		
Experience with systematic reviews and GRADE		
Perform systematic reviews		
Perform meta-analyses		
Develop GRADE Evidence Profiles or Summary of Findings Tables		
Have experience with available software tools to support the development of GRADE Evidence Profiles		
Experience formulating recommendations		
Incorporate data on values and preferences, feasibility, acceptability, and equity into recommendations		
Incorporate data on resource use		
Chair or cochair a guideline development meeting		
Experience with specific types of evidence and guideline questions		
Have clinical, public health or policy knowledge and experience related to the specific topic of the guideline		
Assist guideline groups in formulating evidence-based recommendations in clinical topic areas		
Assist guideline groups in formulating evidence-based recommendations regarding health care system interventions		
Assist guideline groups in formulating evidence-based recommendations in public health		
Perform one or more systematic reviews or develop guidelines where the dominant form of evidence was nonrandomized studies		
Perform one or more systematic reviews or develop guidelines that involved a question of risk or prognosis		
Perform one or more systematic reviews or develop guidelines that involved a question of diagnostic test accuracy or value		
Collect and synthesize data on values and preferences		
Incorporate qualitative data into a systematic review or guideline		
Perform one or more systematic reviews of economic data or experience with cost-effectiveness analyses		
Implement one or more guidelines in real-world settings		

Details: Provide brief but detailed information on the nature and duration of the item listed in column 1, including title and number of hours. Indicate the year(s) in which the training or experience was completed.

Comments: Briefly provide any additional relevant information.