Education

The European Association of Urology (EAU) Guidelines Methodology: A Critical Evaluation

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Abstract

Objectives: Guidelines can be produced and written in numerous ways. The aim of the present article is to describe and evaluate the method currently used to produce the European Association of Urology (EAU) guidelines.

Design, setting, and participants: The methodology is described in detail, compared to other urologic guidelines by members of the EAU Guidelines Office Board.

Measurements: The new methodology is evaluated by the Appraisal of Guidelines for Research and Evaluation (AGREE) instrument.

Results and limitations: The currently used methodology is adapted to the aims and objectives as established by the EAU for their guidelines; wide coverage (essentially all fields of urology) and useful to urologists all over Europe. The frequent updates are easily accessible in a printed and electronic format. The AGREE instrument supports these strong points, but also identifies potentially weak points, such as no patient involvement, no formal validation of the guidelines texts prior to publication, and lack of discussion of organisational barriers and cost implications.

Conclusion: The currently used methodology for the production of EAU guidelines fulfils the association’s main objectives related to their guidelines, but the texts will benefit from the inclusion of country-specific cost and organisational data. For the practising clinician, these guidelines will help to take science into clinical practice.

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1. Introduction

The European Association of Urology (EAU) is the principal, international urologic association in Europe, but also has members from many other countries worldwide. The organisation has as its main objective “To foster and proliferate the highest standards of urological care throughout Europe” [1].

In line with this objective, work on writing urologic guidelines started in 1996. In the beginning, it was a slow process because the organisation essentially started with a blank sheet of paper. Of special consideration was the European situation with 46 different countries, all having their own medical traditions, language, health care systems, and different access to health care. With this in mind, it was important to recruit members of the various working groups from all over Europe and, in some instances, from outside the continent.

The first set of guidelines—including texts on urolithiasis, disorders of ejaculation, erectile dysfunction, bladder cancer, penile cancer, and renal cell cancer—was published in the year 2000 [2]. Since then, the number of subjects has increased. Today, more or less the entire field of urology is covered in 19 topics [3]. The guidelines are republished annually both in print and electronic format.

The strength of a guideline is dependent on which method was used for its production. As there are few other international urologic guidelines available offering such wide coverage, our aim is to describe the methodology used for the production of the EAU guidelines and discuss the strength and weaknesses of this method. By doing so, the many readers of the EAU guidelines can better judge the quality of the statements made.

2. Material and methods

The method currently used for writing the EAU Guidelines is described and compared to other methodologies. The methodology has been refined continuously since the start of the guidelines process in 1996. A major revision was undertaken in 2003 when the level of evidence and grade of recommendation were added. In April 2007, all members of the guidelines working groups met for a 2-d working meeting, and the methodology described herein is the one implemented at that meeting. Future updates of the EAU guidelines will therefore adhere to this new methodology.

An attempt to validate the guidelines with the Appraisal of Guidelines for Research & Evaluation (AGREE) instrument has also been performed [4]. The AGREE instrument, to be used by a minimum of two but preferably at least four appraisers, was developed by the AGREE collaboration using referenced sources [5–8] for the evaluation of guidelines. The AGREE evaluation instrument was not produced to evaluate a guideline template/method, but rather to analyse and assess a range of specific attributes contributing to the validity of a specific clinical guideline [4]. Nevertheless, the aim of the instrument is to aid guideline producers in producing a guideline that will achieve its intended outcome, so we have chosen to evaluate our currently updated guidelines using the 23 key items to evaluate our currently used methodology have been recorded.

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Table 1 – The six domains and the specific terms used for evaluation by the AGREE instrument

<table>
<thead>
<tr>
<th>Domain</th>
<th>Terms</th>
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<tbody>
<tr>
<td>1. Scope and purpose (terms 1–3)</td>
<td></td>
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<tr>
<td>2. The overall objective(s) of the guideline is (are) specifically described.</td>
<td></td>
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<tr>
<td>3. The clinical question(s) covered by the guideline is (are) specifically described.</td>
<td></td>
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<tr>
<td>4. The patients to whom the guideline is meant to apply are specifically described.</td>
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<tr>
<td>5. The methodology used for formulating the recommendations is clearly described.</td>
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<tr>
<td>6. The potential cost implication of applying the recommendations is clearly presented.</td>
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<tr>
<td>7. The guideline has been externally reviewed by experts prior to publication.</td>
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<td>8. A procedure for updating the guideline is provided.</td>
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<tr>
<td>9. The methods used for formulating the recommendations are clearly described.</td>
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<tr>
<td>10. The different options for management of the condition are clearly presented.</td>
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<tr>
<td>11. Conflicts of interest of guideline development members have been recorded.</td>
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<tr>
<td>12. The guideline is editorially independent from the funding body.</td>
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3. Results

The first step in the EAU guidelines procedure was to define the main topic. In order to form a broad knowledge base upon which clinical decisions can be made, most of the EAU guidelines are aimed at having a wide coverage. This means, for example, that all aspects of prostate cancer are dealt with in one single guideline.

The second step was to establish a working group. This was done for all EAU guidelines. The working groups comprise 7–11 members, from several countries. Most of
our working group members are academic urologists with a special interest in the topic. Specialists from other medical fields (radiotherapy, oncology, gynaecology, anaesthesiology, etc) were included as full members of the working groups as needed. In general, general practitioners or patient representatives are not part of the working groups. Each member is appointed for a four-year period, renewable once. A chairman leads each group.

The third step was to collect and evaluate the underlying evidence from the published literature. Since nowadays a basic corpus of guidelines texts is already available, literature searches are done on behalf of the regular text updates. Because the aim of the EAU Guidelines is to have a very wide coverage it is simply impossible to carry out a structured literature review (and analysis) of the whole field. Up until 2007, the main strategy was to rely on the guidelines group members’ knowledge and expertise on the current literature, assuming that all, or almost all, relevant information would be captured. Realising that this method was difficult to make transparent, and also allowing for the possibility of article selection bias, the method for literature selection was improved in the course of 2007. In updates produced from 2008 onwards, a structured literature search will be performed for all guidelines, but this search will be limited to randomized controlled trials and meta-analyses, covering at least the past three years, or up until the date of the latest text update if this exceeds the three-year period. In this way, we will be able to ensure that the current version of the guidelines will contain all available high quality evidence whilst still being able to maintain a relatively swift process with regular, frequent updates. This might be regarded as a form of “evidence-based medicine (EBM) lite” when gathering the necessary information for the updates.

The fourth step was to structure and present the information. Since the aim is to provide wide coverage guidelines, some parts of the texts resemble a textbook. For example, all currently used staging and grading systems are included in all guidelines where it is appropriate. The plan is to structure the text similarly in all guidelines. In order to shorten the texts and make them more readable, the use of flow-charts, diagrams, and tables is encouraged. All main recommendations are summarized in boxes and the flow-charts, diagrams, and tables is encouraged. In order to shorten the texts and make them more readable, the use of flow-charts, diagrams, and tables is encouraged. All main recommendations are summarized in boxes and the strength of the recommendation is clearly marked in three grades (A–C), depending on the evidence source upon which the recommendation is based [9]. Every possible effort is made to make the linkage between the level of evidence and grade of recommendation as transparent as possible. Key statements are thus based on the underlying evidence and formulated through group consensus.

The fifth and last step was to make the information readily available to readers and users. The EAU Guidelines long version (containing all 19 guidelines) is reprinted annually in one book. Each text is dated. This means that if the latest edition of the book is read, one will know that this is the most updated version available. The same text is also made available on a CD (with hyperlinks to PubMed for most references) and posted on the EAU websites Uroweb and Urosource (www.uroweb.org/professional-resources/guidelines/ and http://www.urosource.com/diseases/).

Condensed pocket versions, containing mainly flow-charts and summaries, are also printed annually. All these publications are distributed free of charge to all (more than 10,000) members of the association. Abridged versions of the guidelines are published in European Urology as original papers. Furthermore, many important Web sites list links to the relevant EAU guidelines sections on the association Web sites and all, or individual, guidelines have been translated into some 15 languages. One way of assessing if and how (often) a guideline is used is to record the number of hits on the EAU Web sites. Each month, on average, some 125,000 pages of guidelines texts are downloaded and approximately 35,000 visits to the sites are made each month according to Webstats analysis continuously performed by the EAU (unpublished data).

4. Evaluation by the AGREE instrument

Looking at the different domains, the EAU guidelines performed as follows after the new template was implemented. Fig. 1 depicts the score estimated in each domain.

5. Discussion

This paper describes the current methodology for the production of the EAU Guidelines in Urology and evaluates this method using the AGREE instrument. In most domains, the EAU guidelines score acceptably well but there are some specific weak points which relate to the aspiration of having guidelines which encompass virtually the entire speciality of urology and which are suitable for all Europe.

The method of any guideline production can vary widely from a very strict, totally EBM-based, methodology to a much looser guideline based on expert consensus meetings. A stricter methodology has the theoretical advantage that it minimizes bias because a structured literature search and evaluation forms the basis for the recommendations. The most well known structured literature reviews are made by the Cochrane collaboration group (www.cochrane.org). This type of analysis is well suited to address narrow clinical questions (for example, is treatment A or B best for a certain condition?) but is much less well suited for wide coverage guidelines. The reasons are twofold: First, there is a profound lack of high-quality evidence for many questions that need to be covered in wide coverage guidelines; second, the resources involved in completing such a project would exhaust most organisations providing guidelines.

The American Urological Association (AUA) has used a stricter methodology for their urologic guidelines. The newly produced “Guideline for the management of Clinically Localized Prostate Cancer: 2007 update” may serve as an example of that methodology [10]. This guideline does not cover the full field of prostate cancer but is focused on the treatment of stage T1–T2, N0, M0 prostate cancer. The project started in May 2001 and the guideline was published in 2007. Multiple literature searches were performed and 13,888 articles were identified. By various narrowing processes, a total of 436
articles were selected for data extraction and analysis. Essentially, the outcome from this structured analysis is a description of treatment outcomes (oncologic and side effects) for surgery, external beam radiation and low-dose brachytherapy. The quality of the data was such that a formal comparison between the treatments was not possible. The outcome of this effort shows that it is possible to perform a structured analysis in a somewhat larger field but that there is a very severe demand on resources (when compared to a less stringent methodology) and that even this very strict methodology does not allow for comparisons other than those which are made within a study (ie, a randomized controlled trial). Many of the statements are based on panel consensus [10]. Similarly, in the recent collaboration guideline between the AUA and the EAU on ureteral stone management [11], many of the key statements are based on panel consensus, despite a strict methodology being used for evaluation of the literature. A group of experts evaluating the evidence is a key strategy in all known guidelines produced as of today.

Comparing the recommendations in the AUA Prostate Cancer guidelines with those in the latest update of the EAU Prostate Cancer Guidelines [12] reveals that there is little difference in the recommendations, despite the substantial differences in the methodology used. This is in keeping with a more formal published comparison between 15 different guidelines on type 2 diabetes [13]. It was found that despite major differences in methods used for guidelines production (only 18% of the cited evidence was cited in more than one guideline), the key recommendations were essentially the same.

5.1. **Outcome of the AGREE appraisal**

5.1.1. **Domain 1—scope and purpose**
Score 89%. The EAU Guidelines will clearly state the objectives, clinical questions and to which patient they are applicable.

5.1.2. **Domain 2—stakeholder involvement**
Score 58%. The working groups contain relevant specialists (multidisciplinary when needed) and the target users (urologist) are clearly defined. However, patient groups are not involved to any extent and most guidelines have not been piloted prior to publication. This explains the lower score in this domain.

5.1.3. **Domain 3—rigour of development**
Score 76%. The “EBM light” method currently in use will ensure that nearly all randomized controlled trials and meta-analyses are included in the guidelines. The criteria for selection of evidence are clearly described and how recommendations are made is mentioned. In all major treatment areas, there is a balanced view between health benefits and side-effects of therapy. There is a transparency between level of evidence and grade of recommendation but we have no formal external review prior to publication. There is a well-described procedure for regular updates at relatively short intervals—2–4 years in general.

5.1.4. **Domain 4—clarity and presentation**
Score 75%. The recommendations are as specific as the often poor underlying evidence allows. The score might be lower if the lack of underlying evidence is not explicit. All key recommendations are summarised in boxes and all guidelines are presented in several formats. Patient information leaflets are not provided.

5.1.5. **Domain 5—applicability**
Score 44%. The EAU guidelines will, generally, not include a discussion on potential organisational barriers or cost implications. The reason for this is that our guidelines are aimed to be pan-European and the organisation of the health care systems varies considerably throughout Europe. In our opinion, such questions are best dealt with locally as a recommendation that would fit all areas of Europe is not
possible to make. The guidelines are clear in recommending necessary investigations and treatments for various conditions.

5.1.6. Domain 6—editorial independence
Score 100%. The EAU Guidelines effort is funded by the EAU solely and all members of the working groups submit a conflict of interest form.

There are some very clear limitations on the use of the EAU Guidelines. These guidelines are specifically aimed at helping the practising urologist and will thus be of limited use to other health care providers or third party payers. These are limitations that we have accepted, given that the aim is to cover all of Europe and that such non-clinical questions are best covered locally. Another limitation is that the texts have no medico–legal status, nor are they intended to be used as such.

A possible criticism of the current paper lies in the choice of the AGREE instrument and not one of the many other instruments which are available for guidelines appraisal. We found that the AGREE instrument was easy to use and transparent, and it provides the readers with the opportunity to judge our methodology using an appraisal tool which has been authenticated as one of the best, albeit that, in common with other such tools, it does not evaluate the clinical content nor the quality of the underlying evidence [14]. Also, the tool does not evaluate some other factors that may affect/increase the use of guidelines as various types of publications, dissemination, and translations.

Some of the limitations discussed above are inherent to the fact that EAU Guidelines are wide coverage guidelines written to be applicable in many different health care environments present throughout Europe and elsewhere. The methodology described in the present paper has not yet been fully implemented, as can be seen in some of the latest published updates [15,16], although the most important features are included in these guidelines. Future endeavours may include external validation of the updates prior to publication, possibly involvement with general practitioners or organised local adoption to cover the organisational aspects of health care and need for translations. Such changes offer the possibility to get even better guidelines in the future.

6. Conclusion

This article describes the currently used method for the production of the EAU Guidelines in Urology. The strengths and weaknesses have been highlighted using the AGREE instrument. Recent update includes a structured review of all high-quality evidence, clear linkage between level of evidence and grade of recommendations and a more structured way to write the texts. With the current “EBM lite” methodology, we are confident that it is possible to provide European urologist with unbiased, wide coverage and frequently updated urologic guidelines that take science into clinical practice.

Author contributions: Gunnar Aus had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Aus.
Acquisition of data: Aus.
Analysis and interpretation of data: Aus, Hanuš, Irani, Lobel, Loch, Mitropoulos, Parsons, Plass, Schmid.
Drafting of the manuscript: Aus, Parsons.
Critical revision of the manuscript for important intellectual content: Aus, Chapple, Hanuš, Irani, Lobel, Loch, Mitropoulos, Parsons, Plass, Schmid.
Statistical analysis: Aus.
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In the past several years, the international urological societies have developed several clinical guidelines covering major oncologic and functional issues. Several differences exist between the methods used in the development processes of the American Urological Association (AUA) and the European Association of Urology (EAU), but up to now, only the AUA had extensively reported on its methodology. In this original paper, members of the EAU guidelines panel report on the EAU methodology, evaluating it through the Appraisal of Guidelines, Research and Evaluation (AGREE) instrument [1,2].

Using nonsystematic and nonmeta-analytic reviews, the “EBM light” philosophy underlying the EAU guidelines has the theoretical disadvantage of being of a lower quality, but it provides the possibility of updating the guidelines in a timely manner with relatively low costs. Moreover, it has been demonstrated that the median life of clinical guidelines is 5.8 yr, rendering it necessary to update them at least every 3 yr [3]. The EAU guidelines satisfy these criteria, whereas the update process used by the AUA requires longer times.

The idea of evaluating the EAU guidelines methodology through a validated instrument is original and useful, and it affirms that the EAU methodology presents few minor limitations. However, the use of the AGREE instrument has not been orthodox, and some drawbacks emerge from the manuscript. First, the appraisers of the guidelines are the same people developing them, making their evaluation partial and unreliable. External appraisers should be involved in order to pilot or evaluate either this methodology or the single guidelines. Second, several limitations have been recognized and discussed, but no possible solution has been proposed. Third, this methodology is not currently reported in the guidelines, both in the online and in the peer-reviewed versions [4,5]; it is advisable to report the method used to retrieve evidence in any single guideline, specifically reporting also the conflicts of interest that any single panel member might have.

In conclusion, the publication and critical evaluation of the methodology used to develop the EAU guidelines has to be applauded, but a formal, faultless validation to be done in the future should be a goal.

References


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