Methodological rigor and reporting of clinical practice guidelines in patients with allergic rhinitis: QuGAR study

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Background: There are several clinical practice guidelines about the management of allergic rhinitis (AR) being used by clinicians.

Objective: We sought to assess the methodological rigor and transparency of reporting of clinical practice guidelines for the management of AR.

Methods: We systematically searched MEDLINE, the TRIP database, and professional society Web sites for all guidelines about the management of AR published in English after the year 2000. Four reviewers independently assessed the rigor of development and reporting of included guidelines using the Appraisal of Guidelines for Research and Evaluation II instrument.

Results: Our search revealed 432 records, of which 34 full-text articles were assessed for eligibility and 10 fulfilled inclusion criteria. Overall methodological rigor and reporting of guidelines varied from fulfilling most of the Appraisal of Guidelines for Research and Evaluation II criteria to almost none. Across all guidelines, the best reported domain was clarity of presentation, and the least rigorously addressed domain was applicability of guidelines. Agreement beyond chance among the 4 appraisers was fair.

Conclusions: Guideline users should be aware of the difference in the rigor of development and quality of reporting of guidelines about the management of AR. They should choose higher-quality guidelines to use in their practice and teaching. For most reviewed guidelines, there is room for improvement, particularly in the domains of applicability and implementation. (J Allergy Clin Immunol 2014;133:777-83.)

Key words: *Allergic rhinitis, guidelines, Appraisal of Guidelines for Research and Evaluation instrument, methodology*

Abbreviations used
AGREE: Appraisal of Guidelines for Research and Evaluation
AR: Allergic rhinitis
ARIA: Allergic Rhinitis and its Impact on Asthma

Allergic rhinitis (AR) is a high-prevalence disease affecting 10% to 20% of the population.[1] It poses a major socioeconomic burden, has a significant effect on quality of life and work/school performance, and is associated with an increased risk of asthma.[1] At least 3 guidelines for the management of AR have been developed in recent years,[2-4] and many are used by clinicians and patients to inform treatment choices. Although the aim of a guideline is to provide the best advice about the management of health problems and to reduce variability in practice, recommendations developed by different organizations and professional societies might differ and therefore confuse their users.[5,6] A number of factors can contribute to these differences, including the choice of authors and their potential conflicts of interest, scope, target audience, methodological rigor of guideline development, and reporting of the process from gathering evidence to formulating recommendations.

The Appraisal of Guidelines for Research and Evaluation (AGREE) instrument[7] and its updated version, AGREE II,[8] are tools used for the assessment of quality of development and reporting of clinical practice guidelines; they do not assess the clinical content and validity of recommendations. The AGREE instrument is the only guideline appraisal tool that has been developed and validated internationally[9] and endorsed by many organizations, including the World Health Organization.[10] It has been used since 2001 by health care professionals, policymakers, and educators to assess guidelines before adopting their recommendations in practice, to decide which guidelines could inform policy decisions, and to help enhance critical appraisal skills among health professionals and teach core competencies in guideline development and reporting. Multiple assessments and comparisons of guidelines using the AGREE instrument have also been published.[11] We aimed to assess all recent guidelines about the management of AR and to evaluate the methodological rigor and transparency of their reporting using the AGREE II instrument.[8]

METHODS

Search strategy

We identified relevant guidelines by searching the electronic databases MEDLINE (PubMed interface) and the TRIP database (www.tripdatabase.com). Web sites of major guideline developers and the National Guidelines Clearinghouse are indexed in the TRIP database. We provide search strategies in Appendix E1 in this article's Online Repository at www.jacionline.org. In

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TABLE I. Mean standardized scores for each of the AGREE II items

AGREE II item	EAACI, 2000[16]	Allergy Society of South Africa, 2006[14]	IPCRG, 2006[15]	University of Michigan, 2007[17]
Scope and purpose				
1. The overall objective(s) of the guideline is (are) specifically described.	29.2%	20.8%	62.5%	87.5%
2. The health question(s) covered by the guideline is (are) specifically described.	16.7%	20.8%	20.8%	37.5%
3. The population (eg, patients, public) to whom the guideline is meant to apply is specifically described.	25.0%	12.5%	16.7%	83.3%
Stakeholder involvement				
4. The guideline development group includes individuals from all relevant professional groups.	12.5%	12.5%	25.0%	62.5%
5. The views and preferences of the target population (eg, patients, public) have been sought.	0.0%	0.0%	0.0%	8.3%
6. The target users of the guideline are clearly defined.	62.5%	8.3%	87.5%	16.7%
Rigor of development				
7. Systematic methods were used to search for evidence.	0.0%	0.0%	4.2%	91.7%
8. The criteria for selecting evidence are clearly described.	4.2%	4.2%	4.2%	70.8%
9. The strengths and limitations of the body of evidence are clearly described.	8.3%	4.2%	25.0%	16.7%
10. The methods for formulating the recommendations are clearly described.	4.2%	0.0%	0.0%	12.5%
11. The health benefits, side effects, and risks have been considered in formulating the recommendations.	37.5%	20.8%	25.0%	54.2%
12. There is an explicit link between the recommendations and supporting evidence.	62.5%	25.0%	45.8%	16.7%
13. The guideline has been externally reviewed by experts before its publication.	0.0%	0.0%	4.2%	12.5%
14. A procedure for updating the guideline is provided.	0.0%	4.2%	0.0%	8.3%
Clarity of presentation				
15. The recommendations are specific and unambiguous.	58.3%	29.2%	50.0%	83.3%
16. The different options for management of the condition or health issue are clearly presented.	66.7%	41.7%	58.3%	**87.5%**
17. Key recommendations are easily identifiable.	25.0%	8.3%	16.7%	**95.8%**
Applicability				
18. The guideline describes facilitators and barriers to its application.	4.2%	4.2%	4.2%	4.2%
19. The guideline provides advice and/or tools on how the recommendations can be put into practice.	29.2%	8.3%	16.7%	16.7%
20. The potential resource implications of applying the recommendations have been considered.	12.5%	16.7%	0.0%	41.7%
21. The guideline presents monitoring and/or auditing criteria.	0.0%	0.0%	0.0%	0.0%
Editorial independence				
22. The views of the funding body have not influenced the content of the guideline.	12.5%	0.0%	45.8%	41.7%
23. Competing interests of guideline development group members have been recorded and addressed.	0.0%	0.0%	79.2%	70.8%

AAAAI, American Academy of Allergy, Asthma & Immunology; *ACAAI*, American College of Allergy, Asthma & Immunology; *BSACI*, British Society for Allergy and Clinical Immunology; *EAACI*, European Academy of Allergy and Clinical Immunology; *IPCRG*, International Primary Cary Respiratory Group; *JCAAI*, Joint Council of Allergy, Asthma & Immunology. Boldface emphasizes highest value per row.

addition, we searched the Web sites of allergy professional societies (as shown in Appendix E2 in this article's Online Repository at www.jacionline.org) and queried clinical experts in the field. Two authors (A.P. and J.L.B.) independently reviewed titles and abstracts of all identified citations and the full texts of potentially eligible documents using prespecified inclusion and exclusion criteria.[12]

Guidelines about the management of AR published between 2000 and September 2011 were eligible for inclusion. We assumed that guidelines published before the year 2000 would no longer influence current clinical practice. If an update of the same guideline was available, we assessed the most recent version. However, encouraged by the reviewers of this article, we included 2 versions of the Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines because both are likely to be currently used by clinicians. Guidelines about the management of rhinitis in general were included, provided they made explicit recommendations about the management of AR. Guidelines focusing on a single specific management option (eg, allergen immunotherapy) were excluded. We did not exclude guidelines based on country of origin or publication status. However, we excluded guidelines published in languages other than English, as well as guidelines not endorsed by an international or national government agency, professional group, or society, assuming that their effect on current clinical practice would be minimal. For all included guidelines, we searched references of included

TABLE I. *(Continued)*

AAAAI/ACAAI/JCAAI, 2008[4]	ARIA, 2008[1]	BSACI, 2008[3]	ARIA, 2010[2]	Singapore Ministry of Health 2010,[18]	Japanese guideline for AR, 2011[13]
70.8%	**91.7%**	50.0%	79.2%	75.0%	41.7%
29.2%	62.5%	25.0%	**95.8%**	29.2%	16.7%
25.0%	79.2%	58.3%	**91.7%**	29.2%	41.7%
83.3%	45.8%	50.0%	75.0%	66.7%	37.5%
4.2%	29.2%	0.0%	**45.8%**	0.0%	37.5%
50.0%	83.3%	66.7%	**91.7%**	70.8%	8.3%
29.2%	58.3%	62.5%	**95.8%**	4.2%	4.2%
8.3%	20.8%	20.8%	**83.3%**	8.3%	4.2%
25.0%	75.0%	20.8%	**95.8%**	25.0%	4.2%
25.0%	45.8%	20.8%	**95.8%**	16.7%	0.0%
25.0%	62.5%	29.2%	**100.0%**	37.5%	33.3%
58.3%	70.8%	70.8%	**100.0%**	54.2%	16.7%
37.5%	50.0%	8.3%	**79.2%**	0.0%	0.0%
8.3%	45.8%	45.8%	**91.7%**	62.5%	0.0%
58.3%	83.3%	66.7%	**95.8%**	75.0%	50.0%
62.5%	79.2%	83.3%	83.3%	75.0%	66.7%
37.5%	83.3%	37.5%	79.2%	87.5%	16.7%
4.2%	4.2%	20.8%	**33.3%**	8.3%	4.2%
33.3%	37.5%	33.3%	**75.0%**	54.2%	25.0%
12.5%	**50.0%**	0.0%	**50.0%**	29.2%	4.2%
0.0%	0.0%	0.0%	**25.0%**	**25.0%**	0.0%
29.2%	54.2%	20.8%	**66.7%**	16.7%	0.0%
70.8%	**91.7%**	12.5%	87.5%	0.0%	0.0%

guidelines, MEDLINE, and developers' Web sites for any separate technical reports or methodological manuals that might have accompanied the main guideline document.

Assessment of guidelines using AGREE II

We used the AGREE II instrument to assess the methodological rigor and quality of reporting of each guideline.[8] The AGREE II instrument is composed of 23 items grouped in 6 domains: (1) scope and purpose, (2) stakeholder involvement, (3) rigor of development, (4) clarity and presentation, (5) applicability, and (6) editorial independence (Tables I and II).[1-4,13-18] Each item is rated on a 7-point scale ranging from 1 (ie, strongly disagree) to 7 (ie, strongly agree). The 6 domain scores are independent and therefore not aggregated into a single quality score. The AGREE II instrument contains 1 additional item assessing overall quality of a guideline on a 7-point scale and a question on whether the appraiser would recommend a guideline for use in practice assessed on a 3-point scale (ie, "yes," "yes with modifications," and "no"). The AGREE II instrument requires at least 2 appraisers, but 4 are preferred.[8] The appraiser's expertise in the guideline subject is not required because the AGREE II instrument assesses the rigor of development and reporting rather than the clinical content of the guidelines. The score for each domain is calculated by summing the scores across the appraisers and standardizing them as a

TABLE II. Mean standardized scores (95% CIs) for each of the 6 AGREE II domains across the guidelines about management of AR

AGREE II domain	EAACI, 2000[16]	Allergy Society of South Africa, 2006[14]	IPCRG, 2006[15]	University of Michigan, 2007[17]	AAAAI/ACAAI/ JCAAI, 2008[4]
Scope and purpose (items 1-3)	23.6% (7.7% to 39.5%)	18.1% (6.6% to 29.5%)	33.3% (13.7% to 53.0%)	69.4% (47.9% to 91.0%)	41.7% (22.2% to 61.1%)
Stakeholder involvement (items 4-6)	25.0% (3.1% to 46.9%)	6.9% (0.0% to 15.3%)	37.5% (10.0% to 65.0%)	29.2% (7.9% to 50.4%)	45.8% (21.9% to 69.8%)
Rigor of development (items 7-14)	14.6% (5.7% to 23.5%)	7.3% (2.5% to 12.1%)	13.5% (6.5% to 20.6%)	35.4% (23.2% to 47.6%)	27.1% (17.1% to 37.1%)
Clarity of presentation (items 15-17)	50.0% (30.3% to 69.7%)	26.4% (11.8% to 41.0%)	41.7% (24.5% to 58.9%)	**88.9% (82.0% to 95.8%)**	52.8% (35.4% to 70.2%)
Applicability (items 18-21)	11.5% (0.4% to 22.6%)	7.3% (0.1% to 14.5%)	5.2% (0.0% to 14.2%)	15.6% (2.5% to 28.8%)	12.5% (0.2% to 24.8%)
Editorial independence (items 22-23)	6.3% (0.0% to 21.0%)	0.0% (0.0% to 0.0%)	62.5% (41.8% to 83.2%)	56.3% (34.0% to 78.5%)	50.0% (25.3% to 74.7%)

AAAAI, American Academy of Allergy, Asthma & Immunology; *ACAAI*, American College of Allergy, Asthma & Immunology; *BSACI*, British Society for Allergy and Clinical Immunology; *EAACI*, European Academy of Allergy and Clinical Immunology; *IPCRG*, International Primary Cary Respiratory Group; *JCAAI*, Joint Council of Allergy, Asthma & Immunology. Boldface emphasizes highest values per row.

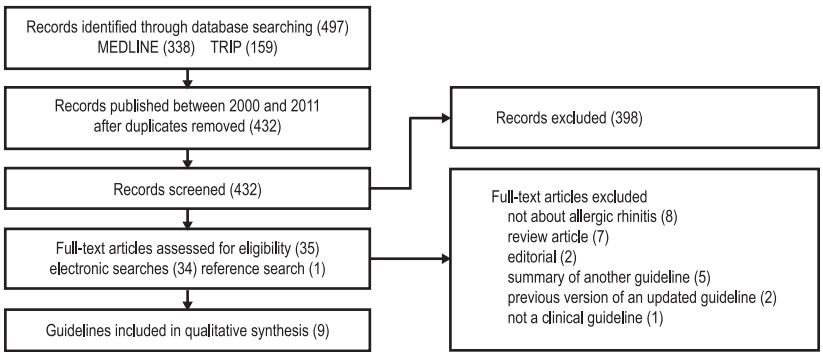

FIG 1. Flow of information through the phases of the review.

percentage of the possible maximum score for a given number of appraisers (thus ranging from 0% to 100%).

Four independent appraisers with varying academic and clinical backgrounds (specialists in allergy [A.P.], respirology [F.M.], primary care and public health [S.A.], and a medical student [R.K.]) rated the methodological rigor development and quality of reporting of each guideline. Two appraisers had previous experience with an application of the AGREE instrument, and for the other 2, we provided a single online training session before the study. None of the appraisers were previously involved in the development of a clinical practice guideline. In case of major discrepancies among the reviewers for any item in a particular guideline (ie, ≥5-point difference: 1 or 2 vs 7 and 1 vs 6), reviewers discussed their judgments and attempted to resolve discrepancies by consensus. We allowed the reviewers to revise their initial ratings if they had missed or misinterpreted the relevant information available in the guideline document. Appraisers were instructed to disregard any information that was not explicitly written in the published document (either in print or in electronic format) because such information would normally not be available to users of guidelines (eg, specific expertise of guideline panel members, whether systematic methods had been used to identify evidence, and existence of accompanying educational materials).

For each guideline, we calculated the AGREE II score per item and per domain, as advised by the authors of the AGREE II instrument. We standardized the score per item by summing up the scores from all 4 appraisers and scaling the total as a percentage of the maximum possible score for that domain. The scaled item score would be equal to the difference between the obtained score (sum of the scores from 4 appraisers) and minimum possible score (1 [strongly disagree] × 4 appraisers = 4) divided by the difference between the maximum possible score (7 [strongly agree] × 4 appraisers = 28) and minimum possible score. Similarly, domain scores were calculated by summing up all the scores of the individual items in a domain and by scaling the total as a percentage of the maximum possible score for that domain.

We calculated the mean score and the corresponding 95% CI for each item and domain. We computed the overall agreement among the 4 appraisers by using the Berry-Mielke coefficient of agreement *R*, which is a generalization of the Cohen κ value to ordinal and interval data and to multiple observers that also incorporates multiple dimensions of observation per observer.[13] For all computations, we used StatsDirect statistical software version 3.0.82 (www.statsdirect.com).

RESULTS

Our electronic searches revealed 432 records, of which 34 full-text articles were assessed for eligibility (Fig 1). One of the full-text articles referred to an additional guideline that was not identified by electronic searches. Overall, 9 guidelines published between 2000 to 2011 fulfilled our inclusion criteria: 3 international guidelines and 6 national guidelines published in Japan, Singapore, South Africa, the United Kingdom, and the United States.[2-4,14-19] References to the records excluded from the review because they either were not clinical practice guidelines or were not about the management of AR are listed in Table E1 in this article's Online Repository at www.jacionline.org.

The overall agreement beyond chance among the 4 appraisers was 33% (Berry-Mielke agreement coefficient $R = 0.33$,

TABLE II. *(Continued)*

ARIA, 2008[1]	BSACI, 2008[3]	ARIA, 2010[2]	Singapore Ministry of Health, 2010[18]	Japanese guideline for AR, 2011[13]
77.8% (64.8% to 90.7%)	44.4% (28.0% to 60.9%)	**88.9% (76.7% to 100.0%)**	44.4% (20.8% to 68.1%)	33.3% (10.3% to 56.4%)
52.9% (31.4% to 74.4%)	38.9% (18.0% to 59.7%)	**70.8% (54.5% to 87.2%)**	45.8% (21.9% to 69.8%)	27.8% (7.9% to 47.6%)
53.8% (44.3% to 63.2%)	34.9% (24.5% to 45.3%)	**92.7% (88.1% to 97.3%)**	26.0% (15.5% to 36.6%)	7.8% (2.3% to 13.3%)
81.8% (74.8% to 88.8%)	62.5% (43.8% to 81.2%)	86.1% (77.3% to 95.0%)	79.2% (71.2% to 87.1%)	44.4% (25.1% to 63.8%)
22.9% (7.4% to 38.4%)	13.5% (2.2% to 24.9%)	**45.8% (28.5% to 63.1%)**	29.2% (11.3% to 47.1%)	8.3% (0.0% to 18.1%)
73.0% (48.5% to 97.5%)	16.7% (1.8% to 31.6%)	**77.1% (57.5% to 96.7%)**	8.3% (0.0% to 21.2%)	0.0% (0.0% to 0.0%)

$P < .0001$), which represents fair agreement.[20] CIs around the ratings provided in Tables I and II might also facilitate its interpretation. Only 22 of 920 ratings (23 items × 4 reviewers × 10 guidelines) required additional discussion among the reviewers because of substantial disagreement (ie difference of ≥5 points on a 7-point scale). However, disagreement among the reviewers could not be resolved by discussion in 7 cases: item 1 for the Singapore Ministry of Health guidelines, item 2 for the University of Michigan guidelines, item 3 for the Singapore Ministry of Health and Japanese guidelines, item 5 for the Singapore Ministry of Health guidelines, and item 17 for the European Academy of Allergy and Clinical Immunology and British Society for Allergy and Clinical Immunology guidelines. As expected, on average, content expertise had no influence on the ratings; an allergy specialist rated the quality of guideline development and reporting similarly to other appraisers.

Methodological rigor and reporting of guidelines about the management of AR was variable, from fulfilling most of the AGREE II criteria to fulfilling almost none (Table I). Scores per domain ranged from 0% to 92% for individual guidelines (Table II).

Across all guidelines, the appraisers assigned the highest scores to the domain clarity of presentation; 5 of 9 guidelines achieved a mean score of at least 50% (Table II). The highest-rated items in that domain were the clear presentation of the different options for management of the condition or health issue (item 16; median score across guidelines, 75%) and specificity of recommendations (item 15; median score across guidelines, 67%). The appraisers assigned the lowest scores to the domain of applicability; 7 of 9 guidelines scored less than 20% (median score across guidelines, 14%). Most guidelines did not describe barriers and facilitators to their application, resource implications, and monitoring and/or auditing criteria (items 18, 20, and 21; median score across guidelines for each item was 4.2%, 14.6%, and 0%, respectively). For all other domains, the scores varied considerably across guidelines (Table II). A single additional item that received the lowest scores (median score across guidelines, 0%) referred to the attempt to obtain the views and preferences of the target population for whom the guidelines were intended (item 5).

Among the reviewed guidelines, the 2010 update of the ARIA guidelines received the highest scores in 5 of 6 domains, with the lowest score in applicability (45.8%) and the highest score in rigor of development (92.7%). The Allergy Society of South Africa Consensus Update achieved the lowest scores among the assessed guidelines because of suboptimal reporting.

We did not observe an apparent difference in the rigor of development and quality of reporting between national and international guidelines.

DISCUSSION

In this systematic review of the methodological rigor and quality of reporting of clinical practice guidelines about the management of AR, we found several limitations of existing guidelines. Applicability of recommendations was the most inadequately addressed item. Our results are in agreement with the general assessment of the quality of clinical practice guidelines performed by Alonso-Coello et al,[21] who found similar scores per domain among 626 guidelines published between the years 1988 and 2007.

The strengths of our review are the systematic search for the relevant guidelines and a rigorous application of the validated AGREE II instrument by 4 independent reviewers. We were aware of the potential for intellectual bias because one of the authors (J.B.) was involved in the development of all ARIA guidelines and 2 (J.L.B. and H.J.S.) were involved in the development of the ARIA 2010 revision. To minimize the risk of bias, we ensured that the guidelines were assessed by those of us who have never participated in guideline development. The appraisers disregarded any information that was not explicitly written in the published document because such information would normally not be available to the target audience of those guidelines. All appraisers were aware of the goal of this study, which was to locate all existing guidelines for the management of AR that are likely to be used in practice today and to identify domains that have the largest limitations with the hope that this knowledge will allow us to improve the next update of the ARIA guidelines. Moreover, the diversity among the appraisers in regard to their clinical background makes us more confident that our results

reflect an unbiased assessment. We also ensured that all appraisers had adequate understanding of the application of the AGREE II instrument. Before the exercise, all appraisers reviewed the most common location of specific information within a guideline and how to rate each item. Despite an inherent requirement for judgments by the appraisers, we did not observe a substantial disagreement, except for 7 (0.8%) instances in which at least 2 appraisers interpreted the reported information differently.

The methods of preparing guidelines have improved over recent years, and hence we expected to find a parallel improvement in the quality of the guidelines themselves. A small number of guidelines provided insufficient power to detect a statistically significant correlation between the rigor of development/reporting of guidelines and the year of their publication. However, we observed a small improvement in all domains except for editorial independence, even after excluding the outlying 2010 update of the ARIA guidelines. This observation is in agreement with the overall trend in guideline development found by Alonso-Coello et al,[21] who noted a significant improvement over time for all domains, except for editorial independence.

Most guidelines suffered from suboptimal reporting, rendering it impossible to tell whether a particular criterion was met. Thus it is likely that better reporting of guideline development would increase quality, usefulness, and acceptability. Even the most methodologically rigorous process, if not properly described in the guideline document, will leave users uncertain about the trustworthiness of the guidelines. We suggest that guideline developers not only follow rigorous and systematic approaches to guideline development but also pay due attention to comprehensive and transparent reporting of that process.

Users of guidelines should be aware that a high score on the AGREE II instrument does not prove that a particular guideline is useful in clinical practice. The AGREE II instrument assesses only those domains reflecting methodological rigor of guideline development and completeness of reporting thereof. When met, both criteria increase the trustworthiness and possibly also the acceptance of guidelines. For instance, a rigorously developed but suboptimally written guideline would still have a low score. To emphasize, the AGREE instrument does not assess the clinical importance and appropriateness of recommendations. Thus even rigorously developed and well-reported guidelines might still not be useful in practice if they did not focus on relevant health care questions. Users need to assess for themselves the importance and relevance of questions addressed by the guideline. Many recommendations also depend on values and preferences assumed by members of the guideline panels, which might also be different from those of patients seen by particular clinicians in their daily practice.

In conclusion, clinicians and other users of clinical practice guidelines for the management of AR should be aware of the differences and limitations in the quality of their development and reporting. When assessing the usefulness of a specific guideline for clinical practice and teaching, clinicians might want to evaluate the rigor with which it was developed and the completeness of its reporting by using the AGREE II instrument. They might also want to assess the clinical importance of the questions addressed in the guidelines in relation to the specific setting in which they practice. Because specific recommendations might depend on the values and preferences of those who made them, users might want to review whose perspective had been chosen and what values and preferences were assumed by the particular guideline panel members and to what extent they were free of potential intellectual biases and other conflicts of interest.

However, we do not suggest that clinicians use the AGREE II instrument to assess every guideline before they choose to use it. This would not be practical and likely also not helpful. However, we suggest that clinicians assess the rigor of development and reporting of the guidelines they frequently use and rely on in their daily practice. We also suggest that clinical educators assess the quality of guidelines before they use their recommendations in clinical teaching. We believe that it is crucial for clinicians to be aware of the potential limitations of the advice they receive in guidelines and to embrace the uncertainty about the best management for their patients in whom it exists.

For many guidelines, there is much room for improvement in the rigor of their development and quality of their reporting, particularly in the domains of applicability and implementation. However, some recent guidelines are trustworthy for use in clinical practice.

It might also be beneficial if the authors of each guideline consulted the AGREE II instrument before its development and attached their own assessment of their guideline by using the AGREE II instrument as an appendix to the guideline itself.

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Key messages

- **Guidelines about the management of AR vary in rigor of development and transparency of reporting.**
- **The methodological rigor of guidelines might explain differences in the recommendations they offer.**

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APPENDIX E1. Search strategies

- MEDLINE (PubMed): (guideline*[title] OR recommendation*[title/abstract] OR practice guideline[publication type]) AND rhinitis
- TRIP database: rhinitis

APPENDIX E2. Organizations the Web sites of which were searched for relevant guidelines

- British Society for Allergy and Clinical Immunology (BSACI)
- International Primary Care Respiratory Group (IPCRG)
- American College of Allergy, Asthma & Immunology (ACAAI)
- American Academy of Allergy, Asthma & Immunology (AAAAI)
- Agency for Healthcare Research and Quality (AHRQ)
- European Academy of Allergology and Clinical Immunology (EAACI)
- Canadian Society of Allergy and Clinical Immunology
- Allergy, Asthma Information Association (Canada)
- Australian Society of Clinical Immunology and Allergy
- Allergy Society of South Africa
- European Centre for Allergy Research Foundation (ECARF)

TABLE E1. References to excluded documents and reasons for exclusion

Document	Reason for exclusion
Levy, 2011[E1]	Editorial
Angier et al, 2010[E2]	Summary of another included guideline
Braido et al, 2010[E3]	Not a clinical practice guideline
Costa et al, 2009[E4]	Editorial
Bousquet et al, 2008A[E5]	Summary of Bousquet et al, 2008B[E6]
Incaudo and Takach, 2006[E7]	Review
Savage and Roy, 2005[E8]	Review
Blaiss, 2004[E9]	Review
Blaiss, 2003[E10]	Review
Ressel, 2002[E11]	Editorial referring to a review
Bousquet et al, 2001[E12]	Previous version of another included guideline
NICE, 2008[E13]	Online secondary knowledge resource
Map of Medicine, 2010[E14]	Online secondary knowledge resource
Skye et al, 2007[E15]	Not about AR
Bachert et al, 2007[E16]	Not about AR
Scadding et al, 2008[E17]	Not about AR
Desrosiers et al, 2011[E18]	Not about AR
Moscato et al, 2009[E19]	Review
Fokkens et al, 2005[E20]	Not about AR
Fokkens et al, 2007[E21]	Not about AR
Thomas et al, 2008[E22]	Not about AR
Nassef et al, 2006[E23]	Review
Siow et al, 2010[E24]	Review referring to the included guideline
Bonini et al, 2006[E25]	Review
Asher et al, 2004[E26]	Not about AR