Critical appraisal of CPGs

Homayoun Sadeghi-Bazargani
MD, MPH, MSc, PhD
Department of Statistics & Epidemiology
EBM center
Injury Epidemiology & Prevention Research Center
Tabriz University of Medical Sciences

Why?

- Great variability exists in the quality of clinical practice guidelines

A sys. review of the literature by *VLAYEN et al*. in 2005, identified 24 appraisal instruments of practice guidelines

Author[a]	Date	Country of origin	Published in peer-reviewed literature	Validation	Scoring system[b]	No.of items
Institute of Medicine [11]	1992	USA	Yes	Not stated	Y/N/NA	46
Hayward *et al.* [14]	1993	Canada	Yes	Not stated	None	9
Selker [12]	1993	USA	Yes	Not stated	None	7
Hayward *et al.* [13]	1995	Canada	Yes	Not stated	None	10
Mendelson [15]	1995	USA	Yes	Not stated	None	8
Woolf [16]	1995	USA	Yes	Not stated	None	10
SIGN [24]	1995	UK	No	Not stated	Y/N	52
Mutter-Pilson [29]	1995	France	Yes	Not stated	Y/N/NA	18
Ward and Grieco [26]	1996	Australia	Yes	No	Scale	18
Liddle *et al.* [25]	1996	Australia	No	Not stated	Scale	14
Savoie *et al.* [21]	1996	Canada	No	Not stated	Y/N	15
Calder *et al.* [19]	1997	Canada	Yes	No	Y/N	24
Shaneyfelt *et al.* [9]	1998	UK	Yes	Yes	Y/N	25
Helou and Ollenschlager [30]	1998	Germany	Yes	Not stated	Y/N/?/NA	41
Apolone and Bamfi [27]	1999	Italy	Yes	Not stated	None	6
Cluzeau *et al.* [22]	1999	UK	Yes	Yes	Y/N/?/NA	37
Grilli *et al.* [28]	2000	Italy	Yes	Yes	Y/N	3
Casi *et al.* [31]	2000	Spain	Yes	No	Y/N	21
Marshall [20]	2000	Canada	Yes	Not stated	None	9
Sanders *et al.* [18]	2000	USA	Yes	Not stated	Scale	15
Reed *et al.* [17]	2000	USA	Yes	Not stated	Scale	33
Hutchinson *et al.* [23]	2003	UK	Yes	Not stated	None	5
AGREE collaboration [32]	2003	Europe	Yes	Yes	Scale	23
Shiffman *et al.* [10]	2003	North America/UK	Yes	No	None	18

[a]SIGN: Scottish Intercollegiate Guidelines Network; IMCARE: Internal Medicine Center to Advance Research and Education; APA: American Psychological Association; AGREE: Appraisal of Guidelines Research and Evaluation.
[b]Y: yes; N: no; NA: not applicable; ?: not sure

- The instrument developed by Sanders and the AGREE instrument use a numerical scale.
- AGREE instrument instruments are based on the Cluzeau instrument(23/37)
- Four appraisal tools were found to address all the guideline dimensions [22,24,30]
- Cluzeau instrument(+AGREE) is the only instrument that has been subject to a thorough validation study.

One common deficit

- None of the instruments scored the evidence base of the clinical content of guidelines

- EBM?

Quality assessment of clinical practice guidelines for adaptation in burn injury

- 2010-Kis et al. burns 3 6 (2 0 1 0) 6 0 6– 6 1 5
- Of the 24 CPGs evaluated
- 10 (42%) were evidence-based.(non for pediatric burns)
- Although existing CPGs for the management of burn may accurately reflect agreed clinical practice, most performed poorly when evaluated for methodological quality.

Table 4 – Assessment of burns guidelines by the AGREE instrument.

CPG reference number	Type of CPG	Domain scores (%)						
		Scope and purpose	Stakeholder involvement	Rigor of development	Clarity and presentation	Applicability	Editorial independence	Overall assessment
[13]	CB	50	25	21	83	22	0	Would not recommend
[14]	CB	47	23	17	63	0	0	Would not recommend
[15]	EB	89	44	60	90	56	8	Recommend with provisos or alterations
[16]	EB	78	44	60	71	11	8	Recommend with provisos or alterations
[17]	CB	67	42	25	75	31	0	Recommend with provisos or alterations
[18]	EB	94	10	68	85	11	0	Recommend with provisos or alterations
[19]	EB	28	8	11	63	28	0	Would not recommend
[20]	CB	78	69	42	81	39	8	Recommend with provisos or alterations
[21]	EB	94	10	60	79	8	0	Recommend with provisos or alterations
[22]	CB	58	38	23	56	14	0	Recommend with provisos or alterations
[23]	CB	89	29	19	92	11	92	Recommend with provisos or alterations
[24]	EB	78	56	57	77	11	100	Recommend with provisos or alterations
[25]	EB	36	31	50	56	11	0	Recommend with provisos or alterations
[26]	CB	83	17	17	96	17	0	Would not recommend
[27]	EB	92	48	79	92	33	63	Strongly recommended
[28]	EB	81	46	87	79	25	25	Recommend with provisos or alterations
[29]	CB	72	63	35	65	14	0	Recommend with provisos or alterations
[30]	CB	94	25	14	83	11	0	Would not recommend
[31]	EB	94	54	82	100	72	92	Strongly recommended
[32]	CB	64	15	13	73	6	0	Would not recommend
[33]	CB	89	25	19	65	11	0	Would not recommend
[34]	CB	92	40	26	79	33	0	Recommend with provisos or alterations
[35]	CB	69	35	14	88	22	8	Recommend with provisos or alterations
[36]	CB	69	35	19	94	17	0	Would not recommend
Mean		74	35	38	79	21	17	
Range		28–94	8–69	11–87	56–100	0–72	0–100	
Mean of CB CPGs		73	34	22	78	18	8	
Mean of EB CPGs		76	35	61	79	27	30	

Appraisal of Guidelines Research and Evaluation (AGREE)

- The original AGREE Instrument was published in 2003 by a group of international guideline developers and researchers, the AGREE Collaboration
- The objective of the Collaboration was to develop a tool to assess the quality of guidelines.

What is quality of guidelines?

- *the confidence that the potential biases of guideline development have been addressed adequately*
- *and that the recommendations are both internally and externally valid,*
- *and are feasible for practice*

Good features

- International development
- World Health Organization endorsement
- Numerical scale
- Validated

It has 6 domains & 23 items

1.Scope & purpose

2. Stakeholder involvement

3. Rigour of development

4. Clarity & presentation

5. Applicability

6. Editorial independence

RESPONSE SCALE

Strongly Agree	4	3	2	1	Strongly Disagree

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

OVERALL GUIDELINE ASSESSMENT

For each question, please choose the response which best characterizes the guideline assessed:

1. Rate the overall quality of this guideline.

1 Lowest possible quality	2	3	4	5	6	7 Highest possible quality

2. I would recommend this guideline for use.

Yes	
Yes, with modifications	
No	

1. The overall objective(s) of the guideline is (are) specifically described

- health intent(s) (i.e., prevention, screening, diagnosis, treatment, etc.)
- expected benefit or outcome
- target(s) (e.g., patient population, society)

Examples

- Preventing (long term) complications of patients with diabetes mellitus

- Lowering the risk of subsequent vascular events in patients with previous myocardial infarction

2. The health question(s) covered by the guideline is (are) specifically described.

- A detailed description of the health questions covered by the guideline should be provided, particularly for the key recommendations
- • target population
- • intervention(s) or exposure(s)
- • comparisons (if appropriate)
- • outcome(s)
- • health care setting or context

Examples

- How many times a year should the HbA1c be measured in patients with diabetes mellitus?
- What should the daily aspirin dosage for patients with proven acute myocardial infarction be?
- Is self-monitoring effective for blood glucose control in patients with Type 2 diabetes?

If 4 appraisers give the following scores for Domain 1 (Scope & Purpose):

	Item 1	Item 2	Item 3	**Total**
Appraiser 1	5	6	6	**17**
Appraiser 2	6	6	7	**19**
Appraiser 3	2	4	3	**9**
Appraiser 4	3	3	2	**8**
Total	**16**	**19**	**18**	**53**

Maximum possible score = 7 (strongly agree) x 3 (items) x 4 (appraisers) = 84
Minimum possible score = 1 (strongly disagree) x 3 (items) x 4 (appraisers) = 12

The scaled domain score will be:

$$\frac{\text{Obtained score} - \text{Minimum possible score}}{\text{Maximum possible score} - \text{Minimum possible score}}$$

$$\frac{53 - 12}{84 - 12} \times 100 = \frac{41}{72} \times 100 = 0.5694 \times 100 = 57\ \%$$

Original AGREE Item	AGREE II Item
Domain 1. Scope and Purpose	
1. The overall objective(s) of the guideline is (are) specifically described.	No change
2. The clinical question(s) covered by the guideline is (are) specifically described.	The health question(s) covered by the guideline is (are) specifically described.
3. The patients to whom the guideline is meant to apply are specifically described.	The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.
Domain 2. Stakeholder Involvement	
4. The guideline development group includes individuals from all the relevant professional groups.	No change
5. The patients' views and preferences have been sought.	The views and preferences of the target population (patients, public, etc.) have been sought.
6. The target users of the guideline are clearly defined.	No change
7. The guideline has been piloted among end users.	Delete item. Incorporated into user guide description of item 19.

12. There is an explicit link between the recommendations and the supporting evidence.	No change
13. The guideline has been externally reviewed by experts prior to its publication.	No change
14. A procedure for updating the guideline is provided.	No change
Domain 3. Rigour of Development	
8. Systematic methods were used to search for evidence.	No change in item. Renumber to 7.
9. The criteria for selecting the evidence are clearly described.	No change in item. Renumber to 8.
	NEW Item 9. The strengths and limitations of the body of evidence are clearly described.
10. The methods for formulating the recommendations are clearly described.	No change
11. The health benefits, side effects, and risks have been considered in formulating the recommendations.	No change

Domain 4. Clarity of Presentation	
15. The recommendations are specific and unambiguous.	No change
16. The different options for management of the condition are clearly presented.	The different options for management of the condition or health issue are clearly presented.
17. Key recommendations are easily identifiable.	No change
Domain 5. Applicability	
18. The guideline is supported with tools for application.	The guideline provides advice and/or tools on how the recommendations can be put into practice. AND Change in domain (from Clarity of Presentation) AND renumber to 19
19. The potential organizational barriers in applying the recommendations have been discussed.	The guideline describes facilitators and barriers to its application. AND change in order – renumber to 18
20. The potential cost implications of applying the recommendations have been considered.	The potential resource implications of applying the recommendations have been considered.
21. The guideline presents key review criteria for monitoring and/ or audit purposes.	The guideline presents monitoring and/ or auditing criteria.
Domain 6. Editorial Independence	
22. The guideline is editorially independent from the funding body.	The views of the funding body have not influenced the content of the guideline.
23. Conflicts of interest of guideline development members have been recorded.	Competing interests of guideline development group members have been recorded and addressed.

- The AGREE II is generic and can be applied to guidelines in any disease area targeting any step in the health care continuum, including those for health promotion, public health, screening, diagnosis, treatment or interventions.
- At this stage, the AGREE II has not been designed to assess the quality of guidance documents that address health care organizational issues. Its role in the assessment of health technology assessments has not yet been formally evaluated.

Thank you

- *Domain 1. Scope and Purpose* is concerned with the overall aim of the guideline, the specific health questions, and the target population (items 1-3).
- *Domain 2. Stakeholder Involvement* focuses on the extent to which the guideline was developed by the appropriate stakeholders and represents the views of its intended users (items 4-6).
- *Domain 3. Rigour of Development* relates to the process used to gather and synthesize the evidence, the methods to formulate the recommendations, and to update them (items 7-14).

- *Domain 4. Clarity of Presentation* deals with the language, structure, and format of the guideline (items 15-17).
- *Domain 5. Applicability* pertains to the likely barriers and facilitators to implementation, strategies to improve uptake, and resource implications of applying the guideline (items 18-21).
- *Domain 6. Editorial Independence* is concerned with the formulation of recommendations not being unduly biased with competing interests (items 22-23).