

1 **A reporting tool for practice guidelines in healthcare: the RIGHT Statement**

2 Yaolong Chen, Kehu Yang\*, Ana Marušić, Amir Qaseem, Joerg J Meerpohl, Signe Flottorp, Elie A  
3 Akl, Holger J Schünemann, Edwin SY Chan, Yngve Falck-Ytter, Faruque Ahmed, Sarah Barber,  
4 Chieh-feng Chen, Mingming Zhang, Bin Xu, Jinhui Tian, Fujian Song, Hongcai Shang, Kun Tang,  
5 Qi Wang, Susan L Norris\* for RIGHT Working Group

6 Evidence-Based Medicine Center, School of Basic Medical Sciences, Lanzhou University, Lanzhou,  
7 China (Y Chen PhD, K Yang MMed, J Tian PhD, Qi Wang, MMed);

8 Key Laboratory of Evidence Based Medicine and Knowledge Translation of Gansu Province,  
9 Lanzhou, China (Y Chen PhD, Yang MMed, J Tian PhD);

10 Key Laboratory of Chinese Internal Medicine of Ministry of Education, Dongzhimen Hospital,  
11 Beijing University of Chinese Medicine. China (Y Chen PhD, H Shang MD, PhD)

12 Department of Research in Biomedicine and Health, and Cochrane Croatia, School of Medicine,  
13 University of Split, Soltanska, Croatia. (Ana Marušić MD, PhD)

14 American College of Physicians, Philadelphia, USA. (A Qaseem MD, PhD, MHA)

15 Centre de Recherche Épidémiologie et Statistique Sorbonne Paris Cité – U1153, Inserm / Université  
16 Paris Descartes, Cochrane France, Hôpital Hôtel-Dieu, Paris, France (JJ Meerpohl MD)

17 Cochrane Germany, Medical Center - University of Freiburg, Freiburg, Germany (JJ Meerpohl MD)

18 Department for evidence synthesis, the Norwegian Institute of Public Health, Oslo, Norway (S  
19 Flottorp MD, PhD)

20 Department of Internal Medicine, American University of Beirut, Beirut, Lebanon (EA Akl, MD,  
21 MPH, PhD)

22 Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Canada  
23 (HJ Schünemann MD, PhD, EA Akl MD, MPH, PhD)

24 Cochrane Singapore, Singapore Clinical Research Institute, Duke-NUS Medical School, Singapore  
25 (E Chan PhD)

26 Department of Medicine, Case and VA Medical Center, Case Western Reserve University, Cleveland,  
27 USA (Y Falck-Ytter MD)

28 Centers for Disease Control and Prevention, Atlanta, USA (F Ahmed PhD)

29 South Africa WHO Country Office, Pretoria, South Africa (S Barber PhD)

30 Division of Plastic Surgery, Department of Surgery, Wan Fang Hospital, Department of Public  
31 Health, School of Medicine, College of Medicine, Cochrane Taiwan, Taipei Medical University,  
32 Taiwan (C Chen MD, MPH, PhD)

33 Chinese Cochrane Centre, West China Hospital, Sichuan University, Chengdu, China (M Zhang  
34 M.Sc)

35 Nanjing University of Chinese Medicine, Nanjing, China (B Xu MD)

36 Norwich Medical School, Faculty of Medicine and Health Science, University of East Anglia,  
37 Norwich, UK (F Song PhD)

38 Department of Global Health, Peking University, Beijing, China (K Tang PhD)

39 Guidelines Review Committee Secretariat, World Health Organization, Geneva, Switzerland (SL  
40 Norris MD, MPH, MSc)

41 \* corresponding authors

42

43

44 **Abstract**

45 The quality of reporting of practice guidelines is often poor and there is no widely accepted guidance  
46 or standards for the reporting of practice guidelines in healthcare. An international working group  
47 (the RIGHT working group) was therefore established to address this gap. The group followed an  
48 existing framework for developing health research reporting guidelines and the EQUATOR  
49 (Enhancing the QUALity and Transparency Of health Research) Network approach.

50

51 We developed a checklist and an explanation and elaboration document. The RIGHT checklist  
52 includes 22 items that we consider essential for good reporting of practice guidelines. These items  
53 encompass basic information (items 1-4), background (items 5-9), evidence (items 10-12),  
54 recommendations (items 13-15), review and quality assurance (items 16-17), funding and  
55 declaration and management of interests (items 18-19), and other information (items 20-22). The  
56 RIGHT checklist can assist developers when reporting their guidelines, support journal editors and  
57 peer reviewers when considering guideline reports, and help healthcare practitioners understand and  
58 implement a guideline.

59

60 **Primary Funding Source:** National Natural Science Foundation of China, Grant No. 81503459

61

## 62 **Introduction**

63 Clear, explicit and transparent practice guidelines enable healthcare practitioners, health  
64 administrators, program managers, and the public to understand and implement recommendations  
65 that may positively impact patients and populations (1). However, the quality of reporting of practice  
66 guidelines appears to be low (2) and current tools to address this are either outdated, have a narrow  
67 focus, or combine reporting and quality assessment in a single instrument. The Conference on  
68 Guideline Standardization (COGS) published a checklist for reporting of clinical practice guidelines  
69 (last updated in 2003) which focuses mainly on clinical medicine, and thus it may not be directly  
70 applicable to public health or to other types of guidelines (3). The AGREE instrument was  
71 developed for both quality assessment and reporting, although it is widely regarded as an evaluation  
72 tool (6,7). Multi-function tools may not be optimal as it is important to distinguish between tools  
73 that address reporting and those that assess methodological quality as they differ in purpose,  
74 structure and content (8). Recently the AGREE Next Steps Consortium published the AGREE  
75 Reporting Checklist based on the AGREE instrument (4,5), however it is limited to items derived  
76 from the original tool, was developed by a small group of researchers and does not provide detailed  
77 explanation or guidance as to how to use the tool.

## 79 **Development of the RIGHT Checklist**

80 A multidisciplinary international team that included policy makers, methodologists, epidemiologists,  
81 clinicians, editors and consumer representatives from 12 countries across Asia, Africa, Europe,  
82 Oceania and North America was established in 2013. It aimed to develop a tool focusing on the  
83 essential items for reporting of guidelines—RIGHT (**R**eporting **I**tems for Practice **G**uidelines in  
84 **H**eal**T**hcare). Development of the RIGHT checklist followed the framework for developing health  
85 research reporting guidelines (9). We registered the project in the EQUATOR (Enhancing the  
86 **Q**U**A**lity and **T**ransparency **O**f health **R**esearch) library (10). We established two groups: the RIGHT  
87 development group and the Delphi panelists group. The RIGHT development group drafted the  
88 project proposal, generated suggested items, recruited Delphi panelists, designed the questionnaires  
89 for the Delphi survey, and drafted the final report. The Delphi panelists group reviewed the proposal,  
90 participated in three rounds of Delphi surveys, came to consensus on the items included in the final  
91 checklist, and reviewed the final manuscript.

93 The RIGHT development group implemented a four-step approach to generate potential items for  
94 the checklist. First, the group reviewed ten representative reporting guidelines highlighted in the  
95 EQUATOR library to determine how they generated potential items (11). The ten documents  
96 encompassed a wide variety of reporting tools, including for randomized controlled trials, diagnostic  
97 studies, observational studies, animal research, economic evaluation and systematic reviews. One  
98 tool generated items based on a systematic review (12) while the others used surveys, group  
99 meetings, literature reviews, or combined approaches (13-21). Second, we conducted a  
100 comprehensive search of handbooks and other documents to identify standards or tools for guideline  
101 reporting (see Appendix 1). Third, two sub-groups from the RIGHT development group, each  
102 composed of two experienced investigators, independently extracted potential checklist items from  
103 all documents identified in the first two steps. Last, the RIGHT development group held a face-to-  
104 face meeting to aggregate all potential items and remove duplicates. After further discussion, 48  
105 items were included in the initial list of potential items. Readers can obtain the search results and

106 initial list of items from the RIGHT website (22).

107

108 For the Delphi method, we recruited 17 individuals with experience in the development of practice  
109 guidelines or reporting guidelines. These individuals encompassed a broad range of disciplines as  
110 well as diverse geographic representation. The Delphi technique followed the recommendations  
111 proposed by Murphy and Sinha (23, 24) and included three rounds of email-based surveys. Panelists  
112 rated each item on a scale of 1 (not important) to 5 (very important), suggested new items, and  
113 provided comments that were circulated in subsequent rounds. All panelists were asked to disclose  
114 any conflicts of interest before beginning the Delphi survey. The response rate was 100% for all  
115 three rounds of the Delphi process.

116

117 This study was funded by National Natural Science Foundation of China and the funder had no role  
118 in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

119

## 120 **RIGHT Checklist**

121 The RIGHT checklist consists of 22 items that we consider essential for good reporting of practice  
122 guidelines (Table). These items encompass the following domains: basic information (item 1-4),  
123 background (items 5-9), evidence (items 10–12), recommendations (items 13–15), review and  
124 quality assurance (items 16–17), funding, declaration and management of interests (items 18–19),  
125 and other information (items 20-22).

126

127

## 128 **Discussion**

129

130 The RIGHT checklist can assist guideline developers when reporting their guidelines, support  
131 journal editors and peer reviewers when considering guideline reports, and help healthcare  
132 practitioners understand and implement a guideline. The checklist is useful for clinical practice  
133 guidelines as well as guidelines in public health and other healthcare fields since users and  
134 evaluators need a clear, explicit description of the processes and procedures used to develop a  
135 guideline, and access to the evidence used to formulate each recommendation.

136

137 The RIGHT checklist does not prescribe a specific format for the reporting of guidelines. Rather,  
138 each checklist item should be clearly presented and in sufficient detail somewhere in the guideline.  
139 Order and format for each item depend on the developers' preferences, style of the publication, and  
140 most importantly, the end-users' needs. We recommend against deriving a score from the RIGHT  
141 Checklist: the items may not be equally weighted and scores have been demonstrated to be  
142 problematic in research synthesis (25, 26).

143

144 We emphasize that the RIGHT checklist was not developed as a tool for assessing the quality of  
145 published practice guidelines; such instruments exist elsewhere including AGREE (27) and others  
146 (28). Rather, RIGHT is intended to complement these existing tools. RIGHT was also not  
147 developed as guidance for developing guidelines. Many handbooks exist for this purpose, along  
148 with the GIN-McMaster Guideline development checklist - a practical tool for guideline  
149 development supported by learning resources (29). Readers should carefully select a tool according

150 to their specific needs.

151

152 The RIGHT checklist differs from the new AGREE reporting checklist (5) in several important ways.  
153 First, the structure of the AGREE reporting checklist follows the domains of AGREE II: scope and  
154 purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability, and  
155 editorial independence. In contrast, the RIGHT checklist emulates the approach used by other  
156 reporting guidance statements such as CONSORT(15) and PRISMA(13) , ordering items as the  
157 developer and reader would encounter them. Thus RIGHT starts with the title, then the executive  
158 summary, for example. Second, RIGHT includes important items that should be reported in a  
159 guideline that were not included in the AGREE reporting checklist: quality assurance, access,  
160 suggestions for further research, and limitation of the guideline. RIGHT highlights the importance  
161 of reporting PICO questions and quality of the body of evidence, and includes seven sub-items on  
162 the formulation of recommendations from evidence. Finally, the RIGHT explanation and  
163 elaboration statement (appendix 2) provides detailed information and examples, which are not part  
164 of the AGREE reporting checklist.

165

### 166 **Implementation**

167 Endorsement and implementation of reporting guidelines may help reduce wasteful research and  
168 increase the potential impact of research on health (30). We plan to use a number of approaches to  
169 promote implementation of the RIGHT checklist: ask authors of international guideline handbooks  
170 to add the RIGHT checklist into new versions of their handbooks; contact the editors of the core  
171 clinical journals in MEDLINE (<https://www.nlm.nih.gov/bsd/aim.html>) to elicit their support and  
172 encourage them to endorse the RIGHT checklist; and inform guideline developers at international  
173 and national agencies, as well as professional societies about RIGHT.

174

### 175 **Strengths and limitations**

176 We followed an explicit, transparent and documented process for developing the RIGHT checklist  
177 and we provide an accompanying explanation and elaboration statement (See online appendix).  
178 Individuals from key international organizations and institutions that focus on development and  
179 implementation of guidelines contributed to this work, including the EQUATOR network,  
180 Guidelines International Network, the GRADE Working Group, the AGREE Collaboration and the  
181 Cochrane Collaboration. The draft checklist and explanation and elaboration statement underwent  
182 extensive peer review by experts in guideline development with a variety of perspectives. It is  
183 possible that we missed important items when we developed our initial list of items, however we  
184 made every effort to minimize this possibility by examining a large number of guidance documents  
185 and manuals produced by guideline developers and by consulting a broad range of experts in this  
186 field.

187

### 188 **Future development and research**

189 The RIGHT checklist is currently available in English, German, Croatian, Japanese, Korean,  
190 Simplified and Traditional Chinese, and we encourage groups to undertake additional translations.  
191 We plan to develop RIGHT extensions, including RIGHT-P (for Guideline Proposals), RIGHT-COI  
192 (for Conflicts of Interest), and RIGHT-A (for Acupuncture). We ask those who aim to develop  
193 related standards or perform translations to contact the corresponding author of this paper to

194 coordinate efforts and to avoid duplication.

195

196 As for any other reporting standard, the RIGHT checklist is an evolving document that needs  
197 continual assessment, improvement, and updating. We will revise the checklist in the future, taking  
198 into account user feedback, results of formal and informal evaluations, and new studies on guideline  
199 reporting methods. We encourage users to submit their comments via the RIGHT website.

200

201 **Acknowledgements:** We are grateful to the individuals who responded to the Delphi survey and for  
202 their thoughtful comments.

203

#### 204 **Contributors**

205 YC, SLN and KY conceived of RIGHT project and drafted the project proposal. AM, AQ, JM,  
206 SF, EA, EC, YFY, FA, SR, CC, MZ, BX were Delphi panelists and gave comments and  
207 suggestions on the draft item list. YC, KY, FS and KT generated suggested items, designed the  
208 questionnaires for the Delphi survey and did the statistical analysis. YC and SLN drafted the  
209 manuscript and all authors critically reviewed and revised it for important intellectual content. YC  
210 is the guarantor of the manuscript, and affirms that the manuscript is an honest, accurate, and  
211 transparent account of the study being reported. All authors approved the final version of this  
212 article.

213

#### 214 **Disclaimer**

215 The findings and conclusions in this article are those of the authors and do not necessarily  
216 represent the views of WHO or the US Centers for Disease Control and Prevention.

217

218 **Competing interests:** All authors have completed the ICMJE uniform disclosure form at  
219 [www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) (available on request from the corresponding author) and  
220 declare no financial relationships with any organisations that might have an interest in the  
221 submitted work in the previous three years. A number of the authors are active members of the  
222 GRADE Working Group (YC, JM, SF, EA, HJS, YFY, FA, SLN). YC is the member of the AGREE-  
223 Health System team.

224

225 **Ethics approval:** Not needed.

226

227 **Funding:** This study was funded by National Natural Science Foundation of China, Grant No.  
228 81503459; China Fundamental Research Funds for the Central Universities, Grant No. 2016LZU-  
229 JBZX159; The Open Fund of the Key Laboratory of Evidence-Based Medicine and Knowledge  
230 Translation of Gansu Province, Grant No. EBM1305.

231

232

#### 233 **References**

234 1. Oxman AD, Fretheim A, Schünemann HJ. Improving the use of research evidence in guideline  
235 development: 14. Reporting guidelines. *Health Res Policy Syst.* 2006;4:26.

- 236 2. Grilli R, Magrini N, Penna A, Mura G, Liberati A. Practice guidelines developed by specialty  
237 societies: the need for a critical appraisal. *Lancet*. 2000;355(9198):103-6.
- 238 3. Shiffman RN, Shekelle P, Overhage JM, Slutsky J, Grimshaw J, Deshpande AM. Standardized  
239 reporting of clinical practice guidelines: a proposal from the Conference on Guideline  
240 Standardization. *Ann Intern Med*. 2003;139(6):493-8.
- 241 4. Brouwers MC, Kho ME, Browman GP, Burgers JS, Cluzeau F, Feder G, et al. AGREE II:  
242 advancing guideline development, reporting and evaluation in health care. *CMAJ*.  
243 2010;182(18):E839-42.
- 244 5. Brouwers MC, Kerkvliet K, Spithoff K, Consortium ANS. The AGREE Reporting Checklist:  
245 a tool to improve reporting of clinical practice guidelines. *BMJ*. 2016;352:i1152.
- 246 6. Oxman AD, Schünemann HJ, Fretheim A. Improving the use of research evidence in guideline  
247 development: 16. Evaluation. *Health Res Policy Syst*. 2006;4:28.
- 248 7. Wilson KC, Irwin RS, File TM, Schünemann HJ, Guyatt GH, Rabe KF. Reporting and publishing  
249 guidelines: article 12 in Integrating and coordinating efforts in COPD guideline development. An  
250 official ATS/ERS workshop report. *Proc Am Thorac Soc*. 2012;9(5):293-7.
- 251 8. Huwiler-Muntener K, Juni P, Junker C, Egger M. Quality of reporting of randomized trials as a  
252 measure of methodologic quality. *JAMA*. 2002;287(21):2801-4.
- 253 9. Moher D, Schulz KF, Simera I, Altman DG. Guidance for developers of health research reporting  
254 guidelines. *PLoS Med*. 2010;7(2):e1000217.
- 255 10. Reporting Items for Guidelines in Health Systems. [Internet]. Minervation Ltd. [cited 2015 Jul 9].  
256 Available from: <http://www.equator-network.org/library/reporting-guidelines-under-development>.
- 257 11. Reporting guidelines for main study types. [Internet]. Minervation Ltd. [cited 2015 Jul 9]. Available  
258 from: <http://www.equator-network.org/library/>.
- 259 12. Chan AW, Tetzlaff JM, Altman DG, Laupacis A, Gotzsche PC, Krleza-Jeric K, et al. SPIRIT 2013  
260 statement: defining standard protocol items for clinical trials. *Ann Intern Med*. 2013;158(3):200-7.
- 261 13. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and  
262 meta-analyses: the PRISMA statement. *BMJ*. 2009;339:b2535.
- 263 14. Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D. The CARE guidelines: consensus-  
264 based clinical case report guideline development. *J Clin Epidemiol*. 2014;67(1):46-51.
- 265 15. Schulz KF, Altman DG, Moher D. CONSORT 2010 statement: updated guidelines for reporting  
266 parallel group randomised trials. *BMJ*. 2010;340:c332.
- 267 16. von Elm E, Altman DG, Egger M, Pocock SJ, Gotzsche PC, Vandenbroucke JP. Strengthening the  
268 Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting  
269 observational studies. *BMJ*. 2007;335(7624):806-8.
- 270 17. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a  
271 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349-57.
- 272 18. Bossuyt PM, Reitsma JB, Bruns DE, Gatsonis CA, Glasziou PP, Irwig LM, et al. Towards complete  
273 and accurate reporting of studies of diagnostic accuracy: the STARD initiative. *BMJ*.  
274 2003;326(7379):41-4.
- 275 19. Davidoff F, Batalden P, Stevens D, Ogrinc G, Mooney SE. Publication guidelines for quality  
276 improvement studies in health care: evolution of the SQUIRE project. *BMJ*. 2009;338:a3152.
- 277 20. Husereau D, Drummond M, Petrou S, Carswell C, Moher D, Greenberg D, et al. Consolidated  
278 Health Economic Evaluation Reporting Standards (CHEERS) statement. *BMJ*. 2013;346:f1049.
- 279 21. Kilkenny C, Browne WJ, Cuthill IC, Emerson M, Altman DG. Improving bioscience research

- 280 reporting: The ARRIVE guidelines for reporting animal research. *J Pharmacol Pharmacother.*  
281 2010;1(2):94-9.
- 282 22. The RIGHT Statement. [Internet]. [cited 2015 Jul 9]. Available from: <http://www.right->  
283 [statement.org/](http://www.right-statement.org/).
- 284 23. Murphy MK, Black NA, Lamping DL, McKee CM, Sanderson CF, Askham J, et al. Consensus  
285 development methods, and their use in clinical guideline development. *Health Technol Assess.*  
286 1998;2(3):i-iv, 1-88.
- 287 24. Sinha IP, Smyth RL, Williamson PR. Using the Delphi technique to determine which outcomes to  
288 measure in clinical trials: recommendations for the future based on a systematic review of existing  
289 studies. *PLoS Med.* 2011;8(1):e1000393.
- 290 25. Greenland S, O'Rourke K. On the bias produced by quality scores in meta-analysis, and a  
291 hierarchical view of proposed solutions. *Biostatistics.* 2001;2(4):463-71.
- 292 26. Juni P, Witschi A, Bloch R, Egger M. The hazards of scoring the quality of clinical trials for meta-  
293 analysis. *JAMA.* 1999;282(11):1054-60.
- 294 27. Brouwers MC, Kho ME, Browman GP, Burgers JS, Cluzeau F, Feder G, et al. The Global Rating  
295 Scale complements the AGREE II in advancing the quality of practice guidelines. *J Clin Epidemiol.*  
296 2012;65(5):526-34.
- 297 28. Grimmer K, Dizon JM, Milanese S, King E, Beaton K, Thorpe O, et al. Efficient clinical evaluation  
298 of guideline quality: development and testing of a new tool. *BMC Med Res Methodol.* 2014;14:63.
- 299 29. Schünemann HJ, Wiercioch W, Etzeandía I, Falavigna M, Santesso N, Mustafa R, et al. Guidelines  
300 2.0: systematic development of a comprehensive checklist for a successful guideline enterprise.  
301 *CMAJ.* 2014;186(3):E123-42.
- 302 30. Glasziou P, Altman DG, Bossuyt P, Boutron I, Clarke M, Julious S, et al. Reducing waste from  
303 incomplete or unusable reports of biomedical research. *Lancet.* 2014;383(9913):267-76.
- 304