

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Barriers and enablers to implementing clinical practice guidelines in primary care: an overview of systematic reviews
<b>AUTHORS</b>	WANG, Tao; Tan, Jing-Yu (Benjamin); Liu, Xian-Liang Zhao, Isabella

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Gagliardi, Anna University Health Network, Toronto General Research Institute
<b>REVIEW RETURNED</b>	30-Mar-2022

<b>GENERAL COMMENTS</b>	<p>Thank you for the opportunity to review this interesting manuscript which represents a lot of work to analyze and harmonize detailed data. Following are a number of suggestions that would elaborate and strengthen the findings beyond just reporting enablers and barriers.</p> <p><b>BACKGROUND</b> The Background follows a logical flow of concepts. Emphasis of a few points would strengthen the logic model, as follows:</p> <p>In paragraph #1, the authors specify that primary care plays a critical role in the provision of health care and cite underuse of guidelines in primary care, but readers would further benefit if authors described studies that highlighted specific instances of lack of guideline adherence in primary care. This would underscore that there is indeed a problem in primary care guideline adoption.</p> <p>In paragraph #2, the authors only briefly mention the many barriers/determinants of guideline implementation use. Suggest you elaborate on the details of considerable prior work (e.g. Flottorp reviewed research, consulted international experts to generate 56 barriers in 7 domains), and in particular, elaborate on prior research that identified barriers specific to primary care.</p> <p>In either paragraph #2 or #3, convince readers that barriers in the primary care context differ from those in other healthcare settings with objective data from published studies.</p> <p>The Background section references a lot of studies that might be considered out-of-date; suggest replacing with more current studies to convince readers that this remains a current problem.</p> <p><b>METHODS</b> Search strategy – did the authors apply the PRESS guidelines?</p>
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	<p>Eligibility criteria are quite brief – if limited by a restriction on number of words, include detailed eligibility criteria (inclusion and exclusion) and definitions for key concepts in an online-only file. For example, how did authors define CPGs, enablers and barriers, primary care; what outcomes were of interest, etc. How did the authors distinguish enablers and barriers?</p> <p>Study selection and data extraction does not describe how enablers and barriers were extracted, which is the main goal of this study</p> <p>The authors describe how they quantified overlap/duplicate studies included in multiple reviews, leaving readers to wonder how they addressed overlap. Later in Results they mention there was no overlap. Suggest they make that point here in the Methods.</p> <p>Why was TDF used over any other framework (e.g. Flottorp)? TDF largely includes individual provider attributes (e.g. knowledge, skill, professional identity) with only one general/broad category for environmental context so it does not seem to address the plethora of multi-level factors that may influence guideline use. More explicitly describe how additional domains were added to TDF to make up for its limitations (which domains, from what sources, etc.).</p> <p>What does “rectification of the sub-categories and categories...” mean?</p> <p>How did the authors account for enablers/barriers to CPG use across different conditions. While all may fall under primary care, barriers may be considerably different across guideline recommendations within and across conditions/diseases.</p> <p><b>RESULTS</b></p> <p>Since enablers and barriers are the focus of this study, suggest the authors include a table in the manuscript summarizing data in Supplementary File 1. That might help authors to make the text far more succinct rather than a long list of barriers organized by categories.</p> <p>Further interpretation of the findings would strengthen this manuscript and enhance its contribution to what is already known. Suggest two approaches for doing so, as follows. Such information would highlight what may be novel barriers in the primary care context that guideline implementers, users and researchers must be aware of.</p> <p>1/ How do results map onto what is already known? Given that considerable work has already been done in this area, specifically illustrate how this framework is the same or different from TDF or other established general frameworks that do not focus on primary care. The authors allude to this in the Discussion, but actually reporting the comparison in the Results would really underscore the unique contribution of this work beyond just summarizing barriers.</p> <p>2/</p>
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	<p>Specific to primary care, which are the most common barriers, and which are unique to stakeholder (e.g. patients versus clinicians) and to specific conditions?</p> <p>3/ What were important enablers? The enablers often get forgotten or overshadowed by the many barriers, but enablers give stakeholders concrete strategies to emulate in real life.</p> <p><b>DISCUSSION</b> Under the Implications section, it's not clear how or why the specified strategies are the right ones for addressing identified barriers.</p> <p>Please emphasize any unique contributions of this work, and how this knowledge can help guideline users or implementers. Suggest here you refer to some of my comments under Results (e.g. most common barriers, particular enablers, enablers and barriers unique to primary care, that this study establishes a framework of determinants of guideline use in primary care, etc.).</p> <p>Highlight issues that warrant ongoing research.</p> <p><b>CONCLUSIONS/ABSTRACT</b> Please reflect the suggested enhancements, and elaborate on Conclusions based on suggestions.</p>
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## VERSION 1 – AUTHOR RESPONSE

### Responses to the Comments of Reviewer

**Comment 1:** In paragraph #1, the authors specify that primary care plays a critical role in the provision of health care and cite underuse of guidelines in primary care, but readers would further benefit if authors described studies that highlighted specific instances of lack of guideline adherence in primary care. This would underscore that there is indeed a problem in primary care guideline adoption.

**Response:** Thanks for the comment. Examples with data were used to support the argument of the underuse of guidelines in primary care. Please find the revision on page 4, lines 95-98.

**Comment 2:** In paragraph #2, the authors only briefly mention the many barriers/determinants of guideline implementation use. Suggest you elaborate on the details of considerable prior work (e.g. Flottorp reviewed research, consulted international experts to generate 56 barriers in 7 domains), and in particular, elaborate on prior research that identified barriers specific to primary care.

**Response:** Thanks for your comment. Details have been elaborated on page 4, lines 104-107.

**Comment 3:** In either paragraph #2 or #3, convince readers that barriers in the primary care context differ from those in other healthcare settings with objective data from published studies.

**Response:** Thanks for your suggestion. The difference and the importance of exploring the barriers and enablers in the primary care setting were further justified on page 4, lines 122-129.

**Comment 4:** The Background section references a lot of studies that might be considered out-of-date; suggest replacing with more current studies to convince readers that this remains a current problem.

**Response:** We updated the references, with 13 out of the 21 references published within the last 5 years. The updated references have been highlighted in red in the reference list.

**Comment 5:** Search strategy – did the authors apply the PRESS guidelines?

**Response:** Details of the used Mesh terms, keywords and free words, and search strategies of each database used in this study were reviewed by two researchers with extensive experience in doing systematic reviews and a librarian. Please find the clarifications on page 5, lines 155-157.

**Comment 6:** Eligibility criteria are quite brief – if limited by a restriction on number of words, include detailed eligibility criteria (inclusion and exclusion) and definitions for key concepts in an online-only file. For example, how did authors define CPGs, enablers and barriers, primary care; what outcomes were of interest, etc. How did the authors distinguish enablers and barriers?

**Response:** Thanks for the suggestion. More details and the relevant definitions were elaborated on page 6, lines 170-175.

**Comment 7:** Study selection and data extraction does not describe how enablers and barriers were extracted, which is the main goal of this study.

**Response:** Thanks for the comments. More details were elaborated on page 6, lines 189-197.

**Comment 8:** The authors describe how they quantified overlap/duplicate studies included in multiple reviews, leaving readers to wonder how they addressed overlap. Later in Results they mention there was no overlap. Suggest they make that point here in the Methods.

**Response:** Thanks for the suggestion. We mentioned it in the method section; please find the revisions on page 7, lines 234-235.

**Comment 9:** Why was TDF used over any other framework (e.g. Flottorp)? TDF largely includes individual provider attributes (e.g. knowledge, skill, professional identity) with only one general/broad category for environmental context so it does not seem to address the plethora of multi-level factors that may influence guideline use. More explicitly describe how additional domains were added to TDF to make up for its limitations (which domains, from what sources, etc.).

**Response:** Thanks for the comments. Actually, the content categories were determined based on the checklist for identifying determinants of healthcare practice (Flottorp, et al., 2013) and the findings of previous systematic synthesis on CPGs implementation (Correa et al., 2020; Francke et al., 2008). The subcategories within the individual factors including the healthcare provider-related and the patient-related factors were developed with the guidance of the Theoretical Domains Framework (TDF) of identifying influencing factors of the implementation of CPGs into practice (Atkins et al., 2017). Please find the revision on page 7, lines 216-219.

Atkins L, Francis J, Islam R, O'Connor D, Patey A, Ivers N, Foy R, Duncan EM, Colquhoun H, Grimshaw JM, Lawton R. A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. *Implementation Science*. 2017 Dec;12(1):1-8.

Correa VC, Lugo-Agudelo LH, Aguirre-Acevedo DC, Contreras JA, Borrero AM, Patiño-Lugo DF, Valencia DA. Individual, health system, and contextual barriers and facilitators for the implementation of clinical practice guidelines: A systematic metareview. *Health research policy and systems*. 2020 Dec;18(1):1.

Flottorp SA, Oxman AD, Krause J, et al. A checklist for identifying determinants of practice: a systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. *Implement Sci*. 2013;8:35.

Francke AL, Smit MC, de Veer AJ, Mistiaen P. Factors influencing the implementation of clinical guidelines for health care professionals: a systematic meta-review. *BMC medical informatics and decision making*. 2008 Dec;8(1):1-1.

**Comment 10:** What does “rectification of the sub-categories and categories...” mean?

**Response:** This phase also may be termed “verification” as the process of checking and confirming the categories and/or sub-categories, to ensure a relative certainty about developed categories and sub-categories. It was further clarified on page 7, line 224.

**Comment 11:** How did the authors account for enablers/barriers to CPG use across different conditions. While all may fall under primary care, barriers may be considerably different across guideline recommendations within and across conditions/diseases.

**Response:** Thanks for the comment. Although the specific enablers/barriers reported in the included reviews might be different across different conditions, they could be categorized based on the content categories of the barriers and enablers. For example, the barriers of limited availability of medicine, specialists, allied health professionals, some certain equipment and devices were mentioned by five included studies on different conditions (Asthma, osteoarthritis, chronic kidney disease, and type II diabetes), and those barriers could be all categorized within the category of “Institutional environment and resources factors” although the five studies mentioned different resources (e.g., the study on asthma mentioned device only, while the study on osteoarthritis mentioned medicine). In Supplementary file 2, both the categories and the specific enablers/barriers within each category were presented to help the readers know the enablers/barriers clearly. Of course, we acknowledge the importance of analyzing and categorizing the enablers and barriers based on the types of health conditions; however, due to the limited number of included studies and the variety of health conditions of the included studies, sub-group analysis was not conducted in this study. We have highlighted it as one of the limitations of this study on page 23, lines 460-463.

**Comment 12:** Since enablers and barriers are the focus of this study, suggest the authors include a table in the manuscript summarizing data in Supplementary File 1. That might help authors to make the text far more succinct rather than a long list of barriers organized by categories.

**Response:** Thanks for the suggestion. We developed a table (Table 4) to summarize the data in the Supplementary File. Please find the revisions on page 14, lines 5-6, and the table on page 13.

**Comment 13:** Further interpretation of the findings would strengthen this manuscript and enhance its contribution to what is already known. Suggest two approaches for doing so, as follows. Such information would highlight what may be novel barriers in the primary care context that guideline implementers, users and researchers must be aware of.

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How do results map onto what is already known? Given that considerable work has already been done in this area, specifically illustrate how this framework is the same or different from TDF or other established general frameworks that do not focus on primary care. The authors allude to this in the Discussion, but actually reporting the comparison in the Results would really underscore the unique contribution of this work beyond just summarizing barriers.

**Response:** Thanks for the comment. Some study findings (the first five categories) were consistent with two previous overviews (one was conducted in 2008 by Francke et al, and the other one was conducted in 2018 by Correa et al) on different levels of care including primary, secondary, and tertiary care. Also, this current study identified some barriers and/or enablers within each category that were specific to the primary care setting, for example, limited healthcare networks (political, social, and cultural factors), limited services for specific patient groups or needs (institutional environment and resources factors), limited technical support, and PCPs’ negative attitudes towards the consequences of CPGs (healthcare care provider-related factors). Besides, a specific category was identified in this current study, which was the category of behavioral regulation-related factors such as remuneration, rewards and financial incentivization for the healthcare practice or primary care professionals. Please find the revision on page 14, lines 7-16.

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Specific to primary care, which are the most common barriers, and which are unique to stakeholder (e.g. patients versus clinicians) and to specific conditions?

**Response:** Thanks for the comment. The most commonly reported barriers and enablers, and the unique ones to primary care setting were reported on page 14, lines 7-21.

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What were important enablers? The enablers often get forgotten or overshadowed by the many barriers, but enablers give stakeholders concrete strategies to emulate in real life.

**Response:** Thanks for the comments and suggestions above. Please find the revisions on page 14, lines 7-21.

**Comment 14:** Under the Implications section, it's not clear how or why the specified strategies are the right ones for addressing identified barriers..

**Response:** Thanks for this comment. All the implications were made based on the barrier and enablers identified in this study, and the relevant strategies were proposed based on the current literature (each proposed strategy has reference support). Although all the implementation strategies were proposed based on the current literature with reference support, the CPG researchers, users, and implementers should be aware that well-constructed empirical studies are still needed to further confirm the effectiveness of the potential strategies. Please find the revisions on pages 21-22, lines 393-428, and page 23, lines 450-455.

**Comment 15:** Please emphasize any unique contributions of this work, and how this knowledge can help guideline users or implementers. Suggest here you refer to some of my comments under Results (e.g. most common barriers, particular enablers, enablers and barriers unique to primary care, that this study establishes a framework of determinants of guideline use in primary care, etc.).

**Response:** Thanks for this comment. Please find the revision on page 20, lines 338-342, and page 21, lines 369-377.

**Comment 16:** Highlight issues that warrant ongoing research.

**Response:** please find the revision on page 23, lines 450-455.

**Comment 17:** CONCLUSIONS/ABSTRACT Please reflect the suggested enhancements, and elaborate on Conclusions based on suggestions.

**Response:** Thanks for the comment. Relevant revisions have been made accordingly, and please find the revisions in the abstract and conclusion section (have been highlighted in red).

**Finally,** we would like to thank the editor and the reviewers again for their constructive comments and suggestions!