

1 Mapping the evidence on strategies to 2 adapt and implement health systems 3 guidelines and recommendations: A 4 scoping review protocol 5

6 Authorship

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10 Abstract

11 **Objective**

12 The objective of this scoping review is to map the evidence and identify gaps in existing literature
13 related to adaptation and implementation of health systems guidelines in low- to middle- income
14 countries.

15 **Introduction**

16 Implementation of evidence-informed guidelines is crucial to strengthening health systems and the
17 delivery of health services to improve health and population outcomes. Yet, different health and
18 socio-cultural contexts can challenge the acceptability and uptake of health systems guidelines. To
19 date, much of the synthesized evidence on guideline implementation has focused on clinical
20 practice, with limited attention to the health system arrangements.

21 **Inclusion Criteria**

22 This review will consider research studies that include all individuals or groups targeted by health
23 systems guidelines and recommendations within low- to middle- income countries. The concept of
24 interest involves adaptation or implementation strategies applied at the health systems level.
25 Studies solely focused on the integration of clinical practice guidelines without a health systems
26 implementation component will not be included.

27 **Methods:** This scoping review will aim to locate published and unpublished literature employing a
28 three-step strategy. An experienced librarian will conduct a systematic search in four databases
29 using relevant index terms. Two independent reviewers will complete the screening of titles,
30 abstracts, and full-text studies. For eligible full-text studies, two independent reviewers will conduct
31 data extraction and quality appraisal using pre-defined extraction and appraisal tools. Data synthesis
32 to facilitate policy and systems decision-making will consist of a descriptive summary table and
33 thematic analyses of the data to address each review question.

34

35 Keywords

36 Health system guidelines and recommendation; implementation and adaptation strategies;
37 implementation outcomes; low- and middle-income countries; knowledge synthesis; health service
38 administration; policy making; standards

39

40

41 Introduction

42 Evidence-informed guidelines are pivotal to reforming global health care and strengthening health
43 systems for better patient outcomes and healthier communities worldwide.^{1,2} The World Health
44 Organization (WHO) conceptualizes guidelines as a set of evidence-informed recommendations
45 related to practice, public health, or policy for informing and assisting decision-makers (e.g. policy-
46 makers, health care providers, or patients).³ In 2007, WHO established a Guidelines Review
47 Committee (GRC) to uphold and advance their guideline quality.⁴ To date, there are over 200 WHO
48 guidelines approved by the GRC with 18 specifically aimed at health systems.^{5,6} In contrast to clinical
49 practice guidelines that focus on the effectiveness or safety of clinical actions, health systems
50 guidelines outline the required system, policy, and/or finance components recommended to address
51 health challenges.⁷

52

53 Despite the rigorous systematic synthesis of current research evidence focused on the development
54 of high-quality guidelines, not all guidelines are readily translatable to practice or policy.^{8,9} Further,
55 the small proportion of published evidence (approximately 14%) that does translate into practice
56 can take upwards of 17 years from start to finish.¹⁰ Understanding implementation strategies that
57 facilitate the uptake of evidence-informed guidelines and recommendations is a high research
58 priority.¹¹⁻¹³ Implementation strategies are defined as “methods or techniques used to enhance the
59 adaptation, implementation, and sustainability of a program or practice”.¹⁴

60

61 Inappropriate adaptation or implementation strategies can hinder guideline adherence and uptake.
62 A recent review analysed the implementation plan of WHO guidelines approved by the GCR.⁴ Wang
63 et al. categorized implementation strategies using an adapted Effective Practice and Organisation of
64 Care (EPOC) taxonomy and further grouped them into passive, active, or policy techniques. Overall,
65 the findings revealed a lack of active evidence-based implementation strategies within current WHO
66 guidelines.⁴ For success, even high-quality international guidelines require adapting and tailoring to
67 local contexts or circumstances.¹⁵ However, a greater number of WHO groups could benefit from
68 utilizing systematic and transparent processes in their adaptation of health systems guidelines.¹⁵ The
69 WHO is currently focused on enhancing the adaptability of guidelines¹⁶ and integrating adaptation
70 strategies into their implementation plans.¹⁷ To help address these gaps, the WHO Alliance for
71 Health Policy and Systems Research (the Alliance) created the Research to Enhance the Adaptation
72 and Implementation of Health Systems Guideline (RAISE) portfolio, which aims to support decision-
73 making on policy and systems in low- and middle-income countries (LMICs).¹⁸ While constant change
74 to socio-cultural contexts and health system settings can disrupt and impede the integration of
75 health systems guidelines, much less is known about the factors and processes to enhance their
76 adaptation and implementation.^{4,18} Thus, additional evidence is needed to inform good practices and
77 effective methods for the utilization of health systems guidelines.

78

79 Various taxonomies have been established as a means of better describing and categorizing
80 implementation strategies.^{19–24} Taxonomies, theories, models, and frameworks are often used to
81 conceptualize context to allow for the analysis of determinants (e.g. barriers and enablers) of
82 implementation outcomes.²⁵ Context can account for some of the outcome variation across studies
83 and neglecting to consider the interaction between contextual factors and interventions are likely to
84 lead to underperformance or failure.^{26–30} It is important to recognize the political, cultural, and
85 socioeconomic differences that many LMICs experience in comparison to high-income countries and
86 how these contextual and intersectional factors can influence implementation and adaptation
87 processes. Therefore, the context of a given implementation scenario poses additional challenges
88 among the complexities of choosing the appropriate implementation strategies.³¹ As a result, several
89 methods have been derived for the selection and tailoring of implementation strategies to address
90 contextual needs.³² Guideline adaptation is an essential step within the implementation process³³,
91 which involves the systematic approach to modifying guidelines developed in one setting for use in
92 another cultural or organizational context.³⁴ Frameworks have also been identified for adapting
93 health related guidelines, but most commonly lack guidance on implementing the adapted
94 guidelines.^{17,35} Best methods for developing tailored implementation strategies and selecting
95 adaptation frameworks remains to be elicited.^{17,36}

96
97 A preliminary search of PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews and the
98 JBI Database of Systematic Reviews and Implementation Reports was conducted and an overview of
99 systematic reviews by Pantoja et al. was identified on implementation strategies for health systems
100 in low-income countries.³⁷ Pantoja et al. examined the effects of implementation techniques for
101 health systems and limited the included studies to systematic reviews with implementation
102 strategies that they deemed relevant to low-income countries. As such, they did include studies that
103 were conducted in high-income countries. In contrast, the objective of the planned scoping review
104 will provide an overview of available evidence related to adapting and implementing health systems
105 guidelines and recommendations that have been conducted in low- to middle- income countries. It
106 will include studies from all LMICs and of any methodological design, with the exception of reviews.
107 Further, the review team will adopt an integrated knowledge translation approach and collaborate
108 with a broad range of knowledge users and key informants throughout the review process to ensure
109 the findings are relevant for key stakeholders.

110 Review Questions

111

112 This scoping review will assess and map the available evidence related to adapting and
113 implementing health systems guidelines and recommendations. The following research questions
114 will guide the review:

115

- 116 1. What are the common strategies and approaches for adapting health systems guidelines and
117 recommendations in LMICs?
- 118 2. What are the common strategies and approaches for implementing health systems
119 guidelines and recommendations in LMICs?
- 120 3. What are the common reported outcomes or indicators of success to adaptation and/or
121 implementation of health systems guidelines and recommendations in LMICs?
- 122 4. What are the common reported barriers and facilitators to adaptation and/or
123 implementation of health systems guidelines and recommendations in LMICs?

124 Inclusion Criteria

125 *Participants*

126 In alignment with the EPOC taxonomy of health systems intervention³⁸, this review will
 127 consider articles including any health care organization(s), health care professional(s), or health care
 128 recipient(s) targeted for change by health systems guidelines or recommendations.

129

130 *Concept*

131 The concepts relevant for this review will consist of health systems guidance statements, guidelines,
 132 and/or recommendations as well as strategies, frameworks, and barriers or facilitators related to
 133 their adaptation and/or implementation. Health systems will be conceptualized in accordance with
 134 the WHO and encompass any system responsible for the provision of health services, finances, and
 135 governance.³⁹ Implementations strategies will be defined as any “methods or techniques used to
 136 enhance the adaptation, implementation, and sustainability”¹⁴ of health systems guideline(s) and/or
 137 recommendations. Adaptation strategies will be defined as a “process of thoughtful and deliberate
 138 alteration to the design or delivery of an intervention, with the goal of improving its fit or
 139 effectiveness in a given context”.⁴⁰ Adaptation or implementation strategies solely targeted for
 140 clinical practice without a health systems component will not be included.

141 *Context*

142 Context in this review will involve adaptation or implementation strategies being applied in LMICs at
 143 a health systems level. LMICs will be defined as by the World Bank for the 2021 fiscal year, which is
 144 based on gross national income.⁴¹

145 *Type of Sources*

146 This scoping review will consider any quantitative, qualitative, and mixed method studies that
 147 describe and evaluate the implementation and adaptation of health systems guidelines and/or
 148 recommendations in any LMICs. Studies will be excluded if there is only a description of the
 149 adaptation or implementation strategies for health systems guidelines or recommendations, without
 150 specifically describing the evaluation outcome (e.g. barriers, enablers, etc.) for the related strategies.
 151 Non-empirical textual and descriptive papers will be excluded for the purpose of this review.
 152 Systematic reviews that report on any aspect of implementation and/or adoption of health systems
 153 guidelines and recommendations will be reviewed for primary studies that meet the eligibility
 154 criteria. Studies published in English and not restricted by date of publication will be included.

155 *Methods*

156 This scoping review will be guided by the methodological framework outlined by the Joanna
 157 Briggs Institute (JBI).⁴² The framework will include five phases: (i) identifying the research
 158 question(s); (ii) searching for studies; (iii) selecting studies; (iv) extracting, appraising and charting
 159 data; (v) synthesizing and reporting findings.⁴²

160

161 *Search Strategy*

162 The search strategy will aim to locate both published and unpublished studies. An initial
163 search of MEDLINE (Ovid) was undertaken by a librarian scientist to identify relevant studies of
164 interest. The search strategy was developed using medical subject heading (MeSH) terms and text
165 words contained in the titles and abstracts of relevant articles. A full search strategy for MEDLINE
166 (Ovid) is included in Appendix I. This search strategy underwent peer review by another librarian
167 using the Peer Review of Electronic Search Strategies (PRESS).⁴³ This search strategy will be adapted
168 for each included information source. Finally, a hand search of the primary studies from identified
169 literature reviews and the reference list of all included studies will be scanned for additional studies.
170 If necessary, authors of identified papers will be contacted to obtain additional information.

171

172

173

174 *Information Sources*

175 The databases to be searched in this scoping review include MEDLINE (Ovid), Embase,
176 CINAHL, LILACS (VHL Regional Portal), and Web of Science. Sources of grey literature will include a
177 search of CADTH Grey Matters Tool, Google Scholar, and Proquest Theses and Dissertations.

178 *Study Selection*

179 Search results will be imported into EndNote X9⁴⁴ for the removal of duplicates and then
180 uploaded into Covidence systematic review software⁴⁵ for management of references during the
181 screening process. Two independent reviewers will screen titles and abstracts for assessment against
182 the inclusion criteria to determine study eligibility. Full-text articles for potentially relevant studies
183 will be retrieved. Two independent reviewers will assess the full-text studies for eligibility using the
184 inclusion criteria. At each stage of the study selection process, any disagreements that arise between
185 the reviewers will be resolved through discussion, or with a third reviewer. Reasons for exclusion of
186 full-text studies will be documented for reporting in the final scoping review report. The results of
187 the search will be reported in the final scoping review report and presented in a Preferred Reporting
188 Items for Systematic Reviews and Meta-analyses Extension for Scoping Reviews (PRISMA- ScR) flow
189 diagram.⁴⁶

190 *Data Extraction*

191 Data will be extracted using a data extraction form developed to collect key findings relevant to the
192 scoping review questions (Appendix II). The extraction form will be accompanied by a corresponding
193 code book with definitions developed with input from our WHO knowledge user (RM, EV) and
194 decision makers from various LMICs. The anticipated concepts in the data extraction form include:
195 year of publication, country, study aim(s), study population, setting, intervention type (focus of
196 health system guideline recommendation), implementation/adaptation duration, process and
197 implementation/adaptation outcomes of interest, study methods, reported barriers and enablers to
198 implementation/adaptation, key results, stakeholder engagement and author conclusions.⁴² Details
199 regarding implementation strategies will be extracted based on Proctor and colleagues'
200 recommendations for operationalizing and reporting implementation strategies.¹⁴ Further, the
201 Framework for Reporting Adaptations and Modifications-Enhanced (FRAME) will be used to guide
202 data extraction of adaptation strategies for capturing the who, where, when, why, and how aspects
203 of modifications.⁴⁰ The drafted form and code book will be revised as necessary throughout data
204 extraction to accommodate each included study. Any modifications will be detailed in the full
205 scoping review report. Two independent reviewers will extract details from papers included in the

206 review and disagreements will be resolved by consensus, or with a third reviewer. If required,
 207 authors of included studies will be contacted for missing or additional data.

208
 209 Quality Assessment

210 Quality of included studies will be assessed using the JBI’s Critical Appraisal Tools.⁴⁷ Two
 211 independent reviewers will complete the quality assessment. Any disagreements will be resolved
 212 through discussion or by a third party. The results of this quality assessment will not be used to
 213 exclude studies from the review but rather provide greater insight into the current body of
 214 literature.

215 Data Presentation

216 Data synthesis will focus on summarizing the findings to help inform policy and systems
 217 decision-making in LMICs. A descriptive summary table of all included studies will be comprised of
 218 extracted data on author, year of publication, study design, geographical region, type of participants,
 219 context and type of strategy (adaptation, implementation). Narrative summaries will also be
 220 included to address each research question.

221
 222 Directed content analysis will be used to map implementation strategies according to the list
 223 of 73 implementation strategies and definitions outlined in the Expert Recommendations for
 224 Implementing Change (ERIC) project.²⁰ The capabilities, opportunities and motivation behaviour
 225 model will guide coding of the reported barriers and enablers using NVivo 10 qualitative data
 226 analysis software.^{22,48} Mapping the findings onto published taxonomies will allow for identification of
 227 possible gaps in current knowledge and opportunities for future research.⁴⁹ Where possible
 228 strategies will be classified as non-evidence- or evidence-based and their impact or direction of
 229 effective will be categorized as null, positive, or negative. If feasible, synthesis will attempt to
 230 disentangle distinctions between guideline adaptation and implementation.

231
 232 A meta-analysis will not be undertaken. If amendable, results summaries will be stratified
 233 per LMIC lending groups (low-income, lower middle and upper-middle) and by using the six “building
 234 blocks” of service delivery, health workforce, health information systems, access to essential
 235 medicines, financing, and leadership or governance that WHO identifies as core components to
 236 strengthening health systems.⁵⁰

237
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- 378

379 Appendices

380 Appendix I: Search strategy

381

Medline (Ovid)		
Date: August 18, 2020		
Number	Query	Results
1	((healthcare system? or health care system? or health system? or system wide or systemwide or system level or health service? or health system service? or health administration or service? delivery or delivery of health care or healthcare organi?ation* or health care organi?ation* or health organi?ation* or public health or community health or national health or federal health or local health or state health or provincial health or municipal health or county health or city health) adj3 (policy or policies or directive* or recommendation? or guideline? or guidance or program* or change? or innovat* or rule? or governance or initiative) adj10 (adopt* or adapt* or adhere* or "use" or follow* or implement* or change or integrat* or embed* or uptake or comply or complian*).ab,ti.	7732
2	exp "health care facilities, manpower, and services"/ or "health care economics and organizations"/ or health services administration/ or "organization and administration"/	2917924
3	Policy/ or Organizational Policy/ or Guideline/	32720
4	(adopt* or adapt* or adhere* or "use" or follow* or implement* or change or integrat* or embed* or uptake or comply or complian*).ab,ti.	8142900
5	2 and 3 and 4	4867
6	1 or 5	12547
7	(best practice* or promising practice* or strateg* or support* or approach* or encourag* or foster* or advanc* or enforc* or incentiv* or enable* or facilitat* or advance* or context* or success or promot* or challenge* or barrier* or impediment or inhibit*).ab,ti.	8251184
8	6 and 7	7791
9	(Afghanistan or Bangladesh or Benin or "Burkina Faso" or Burundi or Cambodia or "Central African Republic" or Chad or Comoros or Congo or "Cote d'Ivoire" or Eritrea or Ethiopia or Gambia or Ghana or Guinea or Haiti or India or Kenya or Korea or Kyrgyz or Kyrgyzstan or Lao or Laos or Liberia or Madagascar or Malawi or Mali or Mauritania or Melanesia or Mongolia or Mozambique or Burma or Myanmar or Nepal or Niger or Nigeria or Pakistan or Rwanda or "Salomon Islands" or "Sao Tome" or Senegal or "Sierra Leone" or Somalia or Sudan or Tajikistan or Tanzania or Timor or Togo or Uganda or Uzbekistan or Vietnam or "Viet Nam" or Yemen or Zambia or Zimbabwe).ab,ti.	486027
10	(Albania or Algeria or Angola or Armenia or Azerbaijan or Belarus or Bhutan or Bolivia or Bosnia or Herzegovina or "Cape Verde" or Cameroon or China or Colombia or Congo or Cuba or Djibouti or "Dominican Republic" or Ecuador or Egypt or "El Salvador" or Fiji or Gaza or Georgia or Guam or Guatemala or Guyana or Honduras or "Indian Ocean Islands" or Indonesia or Iran or Iraq or Jamaica or Jordan or Kiribati or Lesotho or Macedonia or Maldives or "Marshall Islands" or Micronesia or "Middle East" or Moldova or Morocco or Namibia or Nicaragua or Palestin* or Paraguay or Peru or Philippines or Samoa or "Sri Lanka" or Suriname or Swaziland or Syria or	411071

	"Syrian Arab Republic" or Thailand or Tonga or Tunisia or Turkmenistan or Ukraine or Vanuatu or "West Bank").ab,ti.	
11	("American Samoa" or Argentina or Belize or Botswana or Brazil or Bulgaria or Chile or Comoros or "Costa Rica" or Croatia or Dominica or Guinea or Gabon or Grenada or Grenadines or Hungary or Kazakhstan or Latvia or Lebanon or Libia or libyan or Libya or Lithuania or Malaysia or Mauritius or Mayotte or Mexico or Micronesia or Montenegro or Nevis or "Northern Mariana Islands" or Oman or Palau or Panama or Poland or Romania or Russia or "Russian Federation" or Samoa or "Saint Lucia" or "St Lucia" or "Saint Kitts" or "St Kitts" or "Saint Vincent" or "St Vincent" or Serbia or Seychelles or Slovakia or "Slovak Republic" or "South Africa" or Turkey or Uruguay or Venezuela or Yugoslavia).ab,ti.	444265
12	(Africa or Asia or "South America" or "Latin America" or "Central America").ab,ti.	183423
13	(transitional adj countr*).ab,ti.	160
14	(lmic or lmicr or (third adj world) or (lami adj countr*)).ab,ti.	7841
15	((non government or non governmental) adj (organization* or organization*)).ab,ti.	2216
16	(low adj3 middle adj3 countr*).ab,ti.	17082
17	(low* adj (gdp or gnp or (gross adj domestic) or (gross adj national))).ab,ti.	248
18	((developing or (less* adj developed) or (under adj developed) or underdeveloped or (middle adj income) or (low* adj income)) adj (economy or economies)).ab,ti.	569
19	((developing or (less* adj developed) or (under adj developed) or underdeveloped or (middle adj income) or (low* adj income) or underserved or (under adj served) or deprived or poor*) adj (countr* or nation or nations or population* or world or area or areas)).ab,ti.	107787
20	exp Asia/	837813
21	exp West Indies/	26454
22	exp South America/	162036
23	exp Latin America/	11147
24	exp Africa/	266871
25	exp Developing Countries/	74898
26	9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25	1958344
27	8 and 26	1843
Search	Query	Results
1	Guideline Adherence/	30924
2	"Delivery of Health Care"/	87297
3	Guidelines as Topic/	38795
4	2 and 3	531
5	((("health system*" or "health care" or healthcare) adj3 (guideline* or recommendation* or standard* or policy or policies or requirement* or protocol* or pathway* or guidance)).kw,kf,tw.	16639
6	4 or 5	17133
7	(adhere* or adapt* or implement* or follow or integrat* or "use").tw,kw,kf.	4691309
8	6 and 7	8090
9	1 or 8	38687

10	("best practice*" or "promising practice*" or strateg* or support* or approach* or encourag* or foster* or advanc*).tw,kw,kf.	4332948
11	9 and 10	13125

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384 Appendix II: Data Extraction Form

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Data Extraction Form	
Year of Publication	
Country (Context)	
Study Aim(s)	
Study Population	
Setting	
Intervention Type (Health System Guideline/Recommendation)	
Implementation/Adaptation Duration	
Implementation Strategies	
Adaptation Strategies	
Outcomes of Interest	
Study Methods	
Barriers to Implementation/Adapation	
Enablers to Implementation/Adapation	
Key Results	
Author Conclusions	
Extractor Notes	

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