

Methodological frameworks for adapting global practice guidelines to national context in the Eastern Mediterranean Region

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Abstract

Background: Adapted clinical practice guidelines (CPGs) are based on existing recommendations from other developers.

Aims: To produce a mapping summary of the methods used for adaptation of CPGs in the Eastern Mediterranean Region (EMR).

Methods: We conducted a literature review of studies describing adaptation of CPGs in the EMR. Databases and official websites were searched for studies published between 2006 and 2022. We excluded *de novo* development of CPGs and adaptation of other types of guidelines such as public health guidelines.

Results: As an overview of the current situation of CPG adaptation in the EMR, we identified the 2 main categories: informal and formal adaptation. Six formal adaptation frameworks were used in the EMR: ADAPTE, Adapted-ADAPTE, GRADE-ADOLOPMENT, RAPADAPTE, CAN-IMPLEMENT, and KSU-Modified-ADAPTE. The validation of adapted CPGs to the local context is not well defined in the literature.

Conclusion: Despite the successful use of CPG formal adaptation frameworks, there is no international standardized guidance to identify which framework is most suitable for specific healthcare contexts in the EMR. Each institution has adapted its CPGs differently. A standardized selection tool is needed to enhance the appropriate selection of the adaptation method that fits the local resources and context. We encourage EMR countries and organizations to register their old and new CPG adaptation projects to avoid duplication in guideline synthesis.

Keywords: clinical practice guidelines, guideline adaptation, adaptation methodologies, Eastern Mediterranean adaptation frameworks, Eastern Mediterranean Region

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Introduction

Guidelines adaptation is a systematic approach to using or modifying guidelines produced in a particular cultural and organizational setting for application in a different setting. It is a valid alternative to *de novo* guidelines development (1–4). Relevant concepts for adaptation include adoption and contextualization. *De novo* guidelines development is the process of establishing new clinical practice guidelines (CPGs) from primary or secondary literature. Adoption means implementation of guidelines recommendations in their entirety, without modification or caveat, in a new healthcare context. In guidelines contextualization, additional considerations are required for guidelines implementation (e.g. local workforce, training, health systems, equipment, and accessibility) (1–7).

Adaptation of CPGs was not widespread until the ADAPTE Collaboration published its framework in 2006. Guidelines adaptation may involve additional work to search for local research, or obtain local consensus,

regarding how best to make changes to recommendations so that care is relevant to the local context (1–3,5).

Healthcare institutions have a strong interest in obtaining quality evidence to create new CPGs for patient care. However, *de novo* guidelines development is often costly, time-consuming, and requires a highly experienced team who can review and critique published research (3,5,6,8). Healthcare institutions find adapting CPGs to local practice practical and feasible, and it helps reduce costs for low-income countries, reduces duplication of efforts, and enhances the effectiveness of high-quality guidelines recommendations (3,5,9,10).

Formal guidelines adaptation frameworks provide a systematic approach and increase methodological rigor and quality of CPGs (10). From 2006, apart from ADAPTE, several frameworks have been established to provide an evidence-based approach to guidelines adaptation [e.g. Adapted-ADAPTE, Alberta-Ambassador-Program-Adaptation-Phase, GRADE-ADOLOPMENT, MAGIC (Making GRADE the Irresistible Choice) (or SNAP-IT),

RAPADAPTE, Royal College of Nursing, Systematic Guideline Review, Adopt–Contextualize–Adapt Framework, DELBI, KSU-Modified ADAPTE, and PAGE] (5,11–21,22).

Four reasons have been identified for guidelines adaptation: (1) developing CPGs from 1 or more source guidelines that are then contextualized to intended healthcare settings; (2) implementing, endorsing, or adopting source guidelines; (3) updating existing guidelines; or (4) analysing conflicting recommendations (16).

The ADAPTE Collaboration performed a systematic review of guidelines adaptation and proposed a stepwise structured framework (1,2,21). The development process took place between 2005 and 2007 and was refined in 2009 with an updated version of its Guideline Adaptation Manual and Resource Toolkit (1). ADAPTE has been used by many organizations to develop high-quality CPGs through 3 phases (set-up, adaptation, and finalization), 9 modules, and 24 steps (Table 1) (1).

In 2010, after evaluating its manual and resource toolkit, the ADAPTE Collaboration dissolved and transferred its resources to the Guidelines International Network (GIN) to make them available to the international community (1,5,6). The GIN Adaptation Working Group aims to provide methods, resources, and training to standardize and improve guidelines adaptation (1,23). Among the 111 member organizations and 240 individual members from 61 countries in the GIN, there are 6 organizational members from 4 EMR countries: Think Pink: Bahrain Breast Cancer Society; Ministry of Public Health and Primary Health Care Corporation (Qatar); National Center for Evidence-Based Medicine, Saudi Health Council (Saudi Arabia); King Saud University Medical City (Saudi Arabia); and National Authority for Assessment and Accreditation in Healthcare (Tunisia). GIN established 7 regional communities, including an Arab Regional Community, that aimed to support increasing regional interest in evidence-based healthcare and CPGs (24,25).

In 2015, Adapted-ADAPTE was published by the Alexandria Center for Evidence-Based Clinical Practice Guidelines (launched in 2008) to support more clarity, simplicity, and practicality, and to reduce the resources and time needed for guidelines adaptation projects (18,19). In 2018, the Egyptian Pediatric Clinical Practice Guidelines Committee was established as a national initiative by faculty staff in the paediatrics departments of 15 Egyptian universities and the Supreme Council of Egyptian University Hospitals. The Committee used Adapted-ADAPTE to adapt 32 national CPGs (26–29).

In 2014, the first adapted CPG published by King Saud University and King Saud University Medical City was followed by guidelines adaptation projects that were published as articles and presented at scientific conferences. The 2009 stakeholder expert collaboration between the Quality Management Department and Research Chair for Evidence-Based Health Care and Knowledge Translation in Riyadh led to formation of

an organization-wide CPG steering committee and departmental committees that functioned as a CPG programme (30). King Saud University and King Saud University Medical City continue to support guidelines adaptation projects at the local ($n = 42$) and national ($n = 8$) levels using KSU-Modified-ADAPTE, which was based on Adapted-ADAPTE and the original ADAPTE, with addition of new tools and modification of others, and a proposed section for guidelines implementation tools and strategies (5,31–34).

In 2017, the GRADE-ADOLOPMENT framework was developed (20). It was the first framework to address CPG adaptation, adoption, and *de novo* guidelines development processes (hence the new acronym ADOLOPMENT). It aimed to develop high-quality guidelines recommendations for local use within a short period. The ADOLOPMENT process consisted of 3 stages (Table 2) (20,33,34). GRADE-ADOLOPMENT was developed as part of a collaborative national CPG initiative between the Saudi Ministry of Health and McMaster University, Canada (20,35,36). The GRADE-ADOLOPMENT and KSU-Modified-ADAPTE frameworks did not benefit from each other, probably because the 2 initiatives were ongoing at the same time, and each had a different scope and purpose. The former was based on GRADE and was part of a national initiative, while the latter was based on ADAPTE and was part of an institutional initiative (16).

RAPADAPTE was used successfully in the EMR. It benefited from ADAPTE and GRADE methods by extending guideline adaptation to evidence database adaptation, through simplifying mapping of DynaMed evidence ratings to GRADE ratings. RAPADAPTE was used to produce the first national evidence-based CPG for breast cancer in Bahrain (39,40).

Some limitations of guidelines adaptation frameworks were identified: (1) most were developed and used in high-income settings; (2) many lacked formal evaluation of their impact on patient outcomes; (3) many were resource and time consuming; and (4) most often did not describe in detail how to implement adapted guidelines recommendations (10,16).

Wang et al. explored the range of experiences with guidelines adaptation from the perspectives of WHO regional and country offices, and identified 2 dominant models (41): (1) a pragmatic approach to copying or customizing WHO guidelines to suit local needs; and (2) building local capacity for evidence synthesis and guideline adaptation frameworks to support local development of national CPGs informed by international CPGs. Their findings could help improve adaptability of WHO CPGs. They also suggested clarifications to the process of guidelines adaptation in WHO and academic literature, to help adaptors and implementers of CPGs decide on the appropriate course of action according to their specific circumstances (41,42).

The aim of this study was to produce a mapping summary of the methods used for guidelines adaptation in the EMR.

Table 1 Original ADAPTE methodology (version 2.0)

Phase	Module	Steps/tools	
Phase 1: set-up	1.1. Preparation module	1. Check whether adaptation is feasible Tool 1: guideline development and implementation resources Tool 2: search sources and strategies	
		2. Establish an organizing committee	
		3. Select a guideline topic	
		4. Identify necessary resources and skills	
		5. Complete tasks for the set-up phase Tool 3: declaration of conflict of interest Tool 4: consensus process resources	
		6. Write adaptation plan Tool 5: example of working plan	
Phase 2: adaptation	2.1. Scope and purpose module	7. Determine the health questions (PIPOH) Tool 6: PIPOH P: patient population I: interventions P: professionals/clinical specialties O: outcomes H: healthcare context	
		2.2. Search and screen module	8. Search for guidelines and other relevant documents Tool 2: search sources and strategies Tool 7: table for summarizing guideline characteristics
			9. Screen retrieved guidelines Tool 8: table for summarizing guideline content
			10. Reduce a large number of retrieved guidelines Tool 9: AGREE Instrument Tool 10: AGREE Inter-rater agreement spreadsheet and AGREEscore calculation spreadsheet
		2.3. Assessment module	11. Assess guideline quality (AGREE Instrument) Tool 9: AGREE Instrument Tool 10: AGREE Inter-rater agreement spreadsheet and AGREEscore calculation spreadsheet
	12. Assess guideline currency Tool 11: currency survey of guideline developers		
	13. Assess guideline content Tool 12: sample recommendation matrix		
	14. Assess guideline consistency Tool 13: evaluation sheet – search and selection of evidence Tool 14: evaluation sheet – scientific validity of guidelines (consistency between evidence, its interpretation and recommendations)		
	15. Assess acceptability and applicability Tool 15: evaluation sheet – acceptability/applicability		
	2.4. Decision and selection module	16. Review assessments	
2.5. Customization module	17. Select between guidelines and recommendations to create an adapted guideline		
Phase 3: finalization	3.1. External review and acknowledgment module	18. Prepare draft adapted guideline Tool 16: checklist of adapted guideline content	
		19. External review – target audience of the guideline Tool 17: external review surveys	
		20. Consult with endorsement bodies	
	3.2. Aftercare planning module	21. Consult with source guideline developers	
		22. Acknowledge source documents	
3.3. Final production module	23. Plan for aftercare of the adapted guideline Tool 18: table for reporting on results of update process		
		24. Produce final guidance document	

Table 2 Summary of the GRADE-ADOLOPMENT process

<p>Stage 1. Guideline topics Identify and prioritize clinical practice guideline topics, and identify existing clinical practice guidelines or evidence synthesis of interest and relevance with appropriate stakeholders.</p>
<p>Stage 2. GRADE evidence to decision frameworks for each guideline recommendation Evaluate existing recommendations and decision to use it by completing GRADE Evidence to Decision frameworks for each recommendation. Three options exist: Evidence to decision criteria available, complete, and up to date: consider adopting the original recommendation. Evidence to decision criteria available but incomplete or outdated: consider adapting the original recommendation (if minor updates are required) or <i>de novo</i> development of the recommendation (if major updates are required). No or insufficient information on evidence to decision criteria: <i>de novo</i> development of the new recommendation.</p>
<p>Stage 3. GRADE-ADOLOPMENT of guideline recommendations Decision to use the original recommendation as it is (adopt), or use it with modification (adapt), or recommendations not useful and need to establish new ones (<i>de novo</i> development), due to missing information followed by updating of evidence and recommendation, and guideline implementation to healthcare setting.</p>

Methods

Sources and methods of selection

We conducted a literature review of studies describing CPG adaptation in the EMR. Databases (including Springer link, EBSCO, ProQuest, and PubMed) and governmental or institutional official websites (e.g. GIN) were searched for studies published between 2006 and 2022. For PubMed, the MeSH terms included (Eastern Mediterranean Region[Title/Abstract]) OR (“Middle East and North Africa”[Title/Abstract]) OR (“Gulf Cooperation Council”[Title/Abstract]) AND (“guideline adaptation”[Title/Abstract] OR “adapt”[Title/Abstract]) AND (“clinical practice guideline”[Title/Abstract]). We included studies, adapted CPG documents, methodology manuals that addressed adaptation (e.g. WHO Handbook), and reviews that described CPG adaptation in the EMR. We excluded *de novo* guidelines development and adaptation of guidelines other than CPGs, such as public health or social care guidelines. Any studies that focused on subjects other than CPG adaptation (e.g. adaptation of tools and other healthcare quality improvement interventions) were excluded. The search was updated before final submission.

Results and Discussion

Compilation and interpretation of data

The WHO EMR comprises 21 Member States and the occupied Palestinian territory (including East Jerusalem), with a population of nearly 679 million people (43). Table 3 shows a sample of recently adapted CPGs in the EMR. WHO has focused on adapting and implementing CPGs for low-income EMR countries. In November 2015, the WHO Regional Office for the Eastern Mediterranean organized an expert consultation on evidence-based *de novo* guidelines development and guidelines adaptation, which included experts from Egypt, France, Lebanon, Norway, and Saudi Arabia, as well as WHO staff. Several challenges to producing high-quality CPGs were identified (8).

The first attempt to adapt published CPGs in the EMR was when a panel of 7 committees of oncologists

and experts reviewed the 2009 National Comprehensive Cancer Network (NCCN) CPGs (11–14). NCCN published their first CPGs adapted for the EMR in 2014 (12), with an update in 2019 to improve regional recommendations and facilitate access to high-quality evidence (13,14). NCCN guidelines adaptation aimed to develop high-quality standard practice accepted by healthcare practitioners in the EMR. However, the CPGs identified a large gap in knowledge and limited evidence relevant to the CPG health topics in the EMR. These limitations reduced the practical utility and efficiency of the CPGs. The wide range of areas covered by the guidelines was another limitation. The diversity of healthcare services provided in different countries made it difficult to provide standardized guidance throughout the EMR. The socioeconomic situation, limited resources, and infrastructure were other challenges identified (13).

Kidney Disease: Improving Global Outcomes adapted their CPGs to the EMR in 2014, using a nephrology expert group from the region (9 stakeholders) along with an international nephrology expert. The CPGs did not include a clear description about how they were adapted methodologically and how the CPG group managed the conflicts of interest (15).

In 2017, a collaboration between Weill Cornell Medical College – Qatar Rheumatoid Arthritis Consortium and American University of Beirut GRADE Center in Lebanon resulted in a Middle Eastern adaptation of the American College of Rheumatology guidelines for treatment of rheumatoid arthritis, using GRADE-ADOLOPMENT. The panel searched for local research and modified the guidelines recommendations based on cost, health equity, benefits and harms, and acceptability (35).

The Alexandria Center for Evidence-Based Clinical Practice Guidelines finalized 11 guidelines adaptation projects between 2010 and 2015 with additional CPG projects in progress. They used Adapted-ADAPTE as a formal guidelines adaptation framework, including the AGREE II instrument, to assess CPG quality. Evidence-based guidelines recommendation and implementation tools were included in the Adapted-ADAPTE CPGs (18,27–29). This methodology was used for the guidelines

Table 3 Characteristics of some recently adapted clinical practice guidelines in the Eastern Mediterranean

CPG title/year of publication	Adapting organization	GAG composition	Source CPGs	Quality assessment of source CPGs or evidence	Formal adaptation framework used	Implementation tools	Declaration of conflict of interests	Presentation and dissemination
Multiple topics in cancer care (2014)	NCCN, USA (MENA group)	Seven disease committees included multidisciplinary expertise from different countries in the MENA region	NCCN CPGs, USA	No	Not applicable	No	Yes	Yes
Multiple topics, 2017	Saudi Ministry of Health with GRADE Center, McMaster University	Clinical experts and methodologists	Yes	Yes GRADE (GRADEpro-GDT software)	GRADE-ADOLOPMENT	Mobile app	Yes	Yes Website, mobile apps, articles, newsletters
Rheumatoid arthritis, 2017	Collaborative between Weill Cornell Medical College - Qatar, Middle East Rheumatoid Arthritis Consortium, & American University Beirut GRADE Center	Clinical experts and methodologists	Yes Adaptation of the 2015 American College of Rheumatology CPG	Yes GRADE (GRADEpro-GDT software)	GRADE-ADOLOPMENT	No	Yes	Yes Publication
Mineral and bone disorders in chronic kidney disease, 2014	KDIGO (MENA group)	Expert group of nephrologists from MENA & international experts. The manuscript was reviewed by the KDIGO Implementation Task Force - Middle East comprising 9 local expertise from MENA.	Adaptation of the 2009 KDIGO (CKD-MBD)	Unclear	Not applicable	No	Unclear	Yes Publication
Ostomy care, 2015	Hamad Medical Corporation, Qatar	A graduate nursing student, academic supervisor, physician and 2 advanced clinical nurse specialists	RNAO, WOCN, NCCN, CINAHL, NICE, WHO, SIGN, ACPGBI	Yes AGREE-II tool [5] RCA tool [12]	CAN-IMPLEMENT	No	No	Yes Publication

Table 3 Characteristics of some recently adapted clinical practice guidelines in the Eastern Mediterranean (continued)

CPG title/year of publication	Adapting organization	GAG composition	Source CPGs	Quality assessment of source CPGs or evidence	Formal adaptation framework used	Implementation tools	Declaration of conflict of interests	Presentation and dissemination
Convulsive status epilepticus in children, 2017	KSU/ KSUMC (Saudi Arabia)	Multidisciplinary GAG from the main organization and external review group from relevant health sectors in Saudi Arabia (clinicians & methodologists)	Texas, NICE	Yes	KSU-Modified-ADAPTE	Yes	No	Yes Publication
Multiple topics: adapted CPG full documents are not published but are available upon request as academic theses from the university	Alexandria Center for Evidence-Based CPGs, Alexandria University (Egypt)	Five CEBCPs members	Different Source CPGs per topic	Yes	Adapted ADAPTE	Yes	Not accessible	Yes Publication (methodology) but CPG documents were not published as articles
Urinary tract infections in infants and children, 2021	Egyptian Pediatric Clinical Practice Guidelines Committee	Seven paediatric nephrologists	Fours CPGs: American Academy Pediatrics, European Association of Urology, European Society of Pediatric Urology, and Asian Association of Urinary Tract Infections	Yes	Adapted ADAPTE	Yes	Yes	Yes Publication
Glaucoma, 2020	KSU/ KSUMC (Saudi Arabia)	Multidisciplinary GAG and external review groups from the main organization (clinicians & methodologists)	American College of Ophthalmology	No	KSU-Modified-ADAPTE	Yes Implementation strategies to overcome noncompliance by using JBI-PACES and GRIP framework	Not accessible	The CPG full document book is not accessible openly. An implementation report was published.
Breast cancer screening, 2017	INEAS (Tunisia)	Collaboration effort between INEAS and the Tunisian Society of Oncology, with American University of Beirut GRADE center support. The panel consisted of 12 local experts	Yes Adapting the European Breast Cancer CPGs.	Yes AGREE-II tool (GRADEpro- GDT software)	GRADE-ADOLPMENT	No	Unclear	Yes Publication

Table 3 Characteristics of some recently adapted clinical practice guidelines in the Eastern Mediterranean (concluded)

CPG title/year of publication	Adapting organization	GAG composition	Source CPGs	Quality assessment of source CPGs or evidence	Formal adaptation framework used	Implementation tools	Declaration of conflict of interests	Presentation and dissemination
Attention deficit hyperactivity disorder, 2021	Saudi Attention Deficit Hyperactivity Disorder (ADHD) Society	Multidisciplinary GAG and external review groups from all relevant health sectors in Saudi Arabia (clinicians & methodologists)	Yes NICE CPG	Yes AGREE-II instrument	KSU-Modified-ADAPTE	Tools adopted from NICE and others newly developed	Accessible upon request from the society website	Mobile version, Summary CPG documents for printing and digital. Full-text publication
Venous thromboembolism prophylaxis, 2021	KSU/ KSUMC (Saudi Arabia)	Multidisciplinary GAG and external review groups from the main organization (clinicians & methodologists)	American College of Chest Physicians	Yes AGREE-II instrument	KSU-Modified-ADAPTE	Tools newly developed including a CPOE with CDSS	Not accessible	CPG full document (book not published). An implementation report was published.
Breast cancer, 2018	Think Pink (Bahrain Breast Cancer Society)	Breast cancer specific expertise (clinicians & methodologists) and consumer advocacy	SIGN, Health Department of Catalonia	AGREE II, IOM standards, Lenzler's Red Flags, GRADE	RAPADAPTE	Tools newly developed	Yes	Published article & full CPG document as a supplement online.
Surgical antimicrobial prophylaxis, 2017	KSU/ KSUMC (Saudi Arabia)	Multidisciplinary GAG and external review groups from the main organization (clinicians & methodologists)	American Society of Health System Pharmacists	Yes AGREE-II instrument	KSU-Modified-ADAPTE	Tools adopted from ASHP and others newly developed	Not accessible	Yes Published
Central vascular access devices, 2014	KSU/ KSUMC (Saudi Arabia)	Multidisciplinary GAG and external review groups from the main organization (clinicians & methodologists).	Centers for Disease Control and Prevention (CDC) and Infusion Nurses Society	Yes AGREE-II instrument	KSU-Modified-ADAPTE	Tools adopted from CDC/ INS and others newly developed	Not accessible	Yes Published
Traumatic brain injury, 2016	Tehran University of Medical Sciences and the Ministry of Health, Iran	Multidisciplinary GAG and external review groups	NICE, SIGN	Yes AGREE-II instrument	Selection of CPGs by the AGREE II	Not mentioned	Not accessible	Yes Published

Abbreviations: ACPGBI = Association of Coloproctology of Great Britain and Ireland; CPG = clinical practice guideline; GAG = guideline adaptation group; INEAS = National Authority for Assessment and Accreditation in Healthcare; KDIGO = Kidney Disease: Improving Global Outcomes; KSU = King Saud University; KSUMC = King Saud University Medical City; MENA = Middle East and North Africa; NCCN = National Comprehensive Cancer Network; NICE = National Institute for Health and Care Excellence; SIGN = Scottish Intercollegiate Guidelines Network.

adaptation projects of the Egyptian Pediatric Clinical Practice Guidelines Committee (27–29).

In 2013, there was a collaboration between the Saudi Center for Evidence-Based Health Care, a former department of the Ministry of Health, and the GRADE Working Group at McMaster University. This collaboration was initiated to develop Saudi CPGs based on GRADE and the GRADE Evidence to Decision framework, which led to development of GRADE-ADOLOPMENT and 20 national CPGs (20,36,44).

In Tunisia, The National Authority for Assessment and Accreditation in Health Care was established in 2012 as an independent public authority supervised by the Ministry of Health, and launched several national projects for health technology assessments, clinical pathways, and CPGs. The CPG projects were generated using GRADE-ADOLOPMENT with methodological support from the American University of Beirut GRADE Center (e.g. breast cancer screening) (45).

In Bahrain, the first national evidence-based CPG for breast cancer was generated in 2019 using RAPADAPTE through a collaboration between Think Pink: Bahrain Breast Cancer Society, National Health Regulatory Authority, Supreme Council of Health, and the former Bahrain Branch of the UK Cochrane Centre. Formulation of the CPG involved an international advisory board and review panel of guideline methodologists, a multidisciplinary expert group of clinicians, and a range of GI tools (39,40).

In Qatar, SA Qader (graduate nursing student, Hamad Medical Corporation, Doha) and ML King (Faculty of Nursing at University of Calgary in Qatar) led a CPG project for ostomy nursing care, using the AGREE II Instrument and CAN-IMPLEMENT. The latter was originally based on the knowledge-to-action process with an increased focus on guidelines implementation (46,47).

In the United Arab Emirates, a 2020 CPG for type 2 diabetes was adapted by the Emirates Diabetes Society using an informal approach (48).

In the Islamic Republic of Iran, several guidelines adaptation projects were conducted. Zadegan et al. were supported by Tehran University of Medical Sciences and the Ministry of Health and Medical Education to adapt a CPG for traumatic brain injury from 2 source guidelines, guided by the AGREE II assessment (16,49). Another research group adapted CPGs for end-of-life care for patients with cancer, using a modified ADAPTE process in addition to a qualitative study and consensus ratings by a multidisciplinary panel of experts based on local healthcare needs (50).

An early initiative was the Sudan Evidence-Based Medicine Association, which was launched in 2006 to establish infrastructure in health services and medical education for implementing evidence-based healthcare, with a focus on clinical pathways and other guidelines implementation tools and interventions. This association was 1 of the early GIN members in the EMR. Later, the

association founders established a new body, Altababa Advanced Training Center, which continued to provide evidence-based healthcare education and training (51,52). Other Sudanese professional societies have produced CPGs (e.g. for systemic hypertension in adults) using an informal guidelines adaptation or adoption approach (53,54).

A systematic review found that, despite improvements in CPGs over the last 2 decades, the quality remained moderate to low when evaluated by AGREE II (55–57). Another recent AGREE II assessment showed that the number of published CPGs was limited, considering the large geographical area of the EMR. The main AGREE II domains that had high scores were clarity of presentation, scope, and purpose, whereas rigor of development and applicability had low scores. The authors recommended that policymakers identify areas for improvement of CPGs, such as training of individuals and recruitment of international experts (56).

A systematic review of 24 CPGs published in Gulf Cooperation Council countries found that 32.78% of all articles were published in Saudi Arabia. The data showed poor adherence to CPGs by healthcare professionals, lack of clear guidelines implementation strategies, lack of awareness of CPGs, and poor access to evidence (58).

The WHO Regional Office for the Eastern Mediterranean and GIN encouraged and facilitated collaboration and networking on capacity building for guidelines adaptation through recognized experts in the region. Collaborators included King Saud University/ King Saud University Medical City CPG Programme, American University of Beirut GRADE Center, and National Authority for Assessment and Accreditation in Healthcare and WHO Country Office in Tunisia (5, 8, 45).

The use of formal guidelines adaptation methods for production of organizational or national CPGs is 1 of the proposed solutions to address the knowledge gaps in the adaptation process (6,10).

Evidence-based gap analysis in the EMR is at its initial stage; however, Egypt, Islamic Republic of Iran, Bahrain, Saudi Arabia Tunisia, Qatar, and United Arab Emirates, have already begun adapting CPGs at institutional and national levels using 6 of the formal methods and frameworks. Transparent descriptions of the guidelines adaptation processes and high-quality recommendations are the cornerstone for implementing these adapted guidelines. Multidisciplinary teams of local and national stakeholders should be involved in evaluating evidence-based guidelines recommendations and their applicability to local settings (8,10,59,60).

Implementation of evidence-based guidelines recommendations is the main goal of establishing the CPGs, and the absence of a clear plan for guidelines implementation renders any guidelines useless. Guidelines implementation tools and strategies, such as failure modes and effects analysis and clinical algorithms, were reported for some of the KSU-Modified-ADAPTE CPGs e.g. venous thromboembolism

prophylaxis, glaucoma, antiemetics for chemotherapy, surgical antimicrobial prophylaxis, and paediatric status epilepticus (5,32,61–64). Other adapted CPGs in the EMR did not report guidelines implementation projects (e.g. NCCN, Middle East Rheumatoid Arthritis Consortium, Ostomy Care, and Kidney Disease: Improving Global Outcomes) (12,15,34,45).

Currently, validation and applicability of adapted CPGs to the local context are not well defined in the literature. Some CPGs in healthcare lack information about the adaptation processes and outcomes (8–10). Without a clear understanding of how much time and resources are saved by guidelines adaptation, CPG developers or adapters cannot be sure that it is worthwhile. There is no global standardized tool to assess methods for adapting CPGs. However, 2 studies used AGREE II or AGREE Reporting Checklist to assess the adaptation process and quality of CPGs, although AGREE II was designed to assess quality of *de novo* guidelines development rather than adaptation (38,47). An international expert collaborative panel developed an extension of the RIGHT statement, the RIGHT-Ad@pt Checklist, which was designed specifically for reporting adapted CPGs (65). Another extension of AGREE II that informed adaptation of surgical CPGs (AGREE-S appraisal instrument) was recently published (66). Abdul-Khalek and her colleagues showed that only 40% of adapted CPGs reported using a published method or framework for adaptation, and compliance with ADAPTE varied. The mean score for AGREE II assessment of adapted CPGs was lowest for the rigour of development (56.79%), applicability (50.14%), and editorial independence (42.54%) (67). Apart from the published review that reported an AGREE II assessment of CPGs in the EMR, clinical validity of the current adapted CPGs was not evaluated (56). Future studies should focus on the usability and health impact of adapted CPGs (31,61–64).

Formal guidelines adaptation frameworks provide clearly defined steps toward achieving adapted evidence-based recommendations, and increased transparency for future groups to understand, evaluate, or imitate the process (6,58). To date, there is no evidence supporting the efficiency of 1 guideline adaptation framework over another. However, the Adapted-ADAPTE, CAN-IMPLEMENT, GRADE-ADOLPMENT, KSU-Modified-ADAPTE, and RAPADAPTE frameworks have been updated from the original ADAPTE, and include additional tools, resources, and templates, and input from many experts. These adaptation methods used in the EMR were based on the original ADAPTE (Adapted-ADAPTE, CAN-IMPLEMENT, and KSU-Modified-ADAPTE) or GRADE (GRADE-ADOLPMENT) methods, or both (RAPADAPTE) (10,16,19).

Early identification of potential barriers and challenges to processes of guidelines adaptation and implementation should be incorporated during the planning stage of adaptation projects. Previous studies

have suggested possible solutions to address these challenges (16,61).

The recent wave of published CPGs of varied quality in response to the COVID-19 pandemic has encouraged the international CPG research community to work on novel evidence-based methodologies for rapid production of guidelines that can address such global public health crises. One suggested solution was the use of formal guidelines adaptation processes (68).

There are significant knowledge gaps and many barriers to the development or adaptation of CPGs in the EMR. Future research with high-quality standards should focus on answering the questions raised in this specific population. Adapted guidelines should be evaluated to improve their applicability and clinical validity for local use. They should have a clear plan for reviewing and updating, and simple enough for further adaptation.

Recommendations to improve collaboration, share and standardize existing CPGs in the EMR

In 2019, Resolution RC66/R.5 of the WHO/EMRO endorsed a regional action plan to increase capacity for evidence-informed policymaking for health. The Regional Network of Institutions for Evidence and Data to Policy highlighted the importance of: (1) developing and regularly updating the priority list for guidelines adaptation and development and health technology assessments; (2) establishing evidence-informed decision-making programmes (e.g. national health technology assessment and guidelines adaptation and development in collaboration with large academic organizations); and (3) supporting policy development and adaptation of WHO guidelines for national priorities by Member States (68–72).

We add our voice to the call in the 2016 WHO report on developing and adapting evidence-based CPGs in the EMR for actions by academic and healthcare delivery organizations and the WHO/EMRO (8). This includes but is not limited to: (1) increased number of academic staff, healthcare providers, and professionals specializing in clinical epidemiology and guidelines methodology; (2) formulation of a regional guidelines advisory committee in the WHO/EMRO that will coordinate with the WHO collaborating centres and centres of excellence in evidence-based healthcare and CPGs; (3) encouragement of research in evidence-based healthcare and CPGs; (4) networking with experts and stakeholders on evidence-based healthcare and CPGs, and collaboration with CPG global organizations like GIN, AGREE Enterprise, GRADE working group, networks, centres, MAGIC Foundation, and RIGHT Working Group; and (5) identifying different formal adaptation frameworks and methodologies in EMR countries and organizations, and the feasibility and sustainability of each framework (22).

Future coordination and integration is recommended in CPG projects, especially those with a national scope. Registration of CPG projects is a global recommendation to avoid duplication of efforts. Two existing international registries are available: GIN International Guideline Library and Registry (<https://g-i-n.net/international-guidelines-library/>), and PREPARE (Practice guideline REgistration for transcPAREncy) that is hosted by the Evidence-Based Medicine Center, University of Lanzhou, China (<http://www.guidelines-registry.org/>) (37,38). We recommend that CPG groups in the EMR should register their finalized and in-progress work to establish a regional database and encourage more networking and collaboration.

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Cadres méthodologiques pour l'adaptation des lignes directrices mondiales de pratique clinique au contexte national dans la Région de la Méditerranée orientale

Résumé

Contexte : Les lignes directrices de pratique clinique adaptées sont basées sur les recommandations existantes de développeurs tiers.

Objectif : Fournir un résumé cartographique des méthodes utilisées pour adapter les lignes directrices de pratique clinique dans la Région de la Méditerranée orientale.

Méthodes : Nous avons mené un examen de la littérature portant sur les études décrivant l'adaptation des lignes directrices de pratique clinique dans la Région. Les études publiées entre 2006 et 2022 ont été recherchées dans des bases de données et sur des sites Web officiels. Nous avons exclu la littérature sur l'élaboration *de novo* de ces lignes directrices et l'adaptation d'autres types de lignes directrices, telles que celles utilisées en santé publique.

Résultats : À titre d'aperçu de la situation actuelle de l'adaptation des lignes directrices de pratique clinique dans la Région de la Méditerranée orientale, nous avons identifié deux catégories d'adaptation principales : les modèles informel et formel. Six cadres d'adaptation formelle y ont été utilisés : ADAPTE, Adapted-ADAPTE, GRADE-ADOLOPMENT, RAPADAPTE, CAN-IMPLEMENT et KSU-Modified-ADAPTE. La validation des lignes directrices de pratique clinique adaptées au contexte local n'est pas bien définie dans la littérature.

Conclusion : Malgré l'utilisation réussie de cadres d'adaptation formelle pour les lignes directrices de pratique clinique, il n'existe pas d'orientations normalisées au niveau international pour identifier le cadre le plus adapté aux contextes spécifiques des soins de santé dans la Région. Chaque établissement a adapté ses lignes directrices différemment. Un outil de sélection normalisé est nécessaire pour améliorer l'adéquation des méthodes d'adaptation aux ressources et au contexte locaux. Nous encourageons les pays de la Région de la Méditerranée orientale et les organisations à enregistrer leurs anciens et nouveaux projets d'adaptation des lignes directrices de pratique clinique afin d'éviter les doublons dans la synthèse de ces lignes directrices.

الأطر المنهجية لتكييف المبادئ التوجيهية للممارسات العالمية مع السياق الوطني في إقليم شرق المتوسط

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الخلاصة

الخلفية: تُعدُّ المبادئ التوجيهية للممارسات السريرية مهمةً للغاية لتحسين النتائج الخاصة بالمرضى، ويعتمد تكييفها في أغلب الأحيان على توصيات من مطورين آخرين.

الأهداف: هدفت هذه الدراسة الى تقديم ملخص لطرق البحث المستخدمة لتكييف المبادئ التوجيهية للممارسات السريرية في إقليم شرق المتوسط.

طرق البحث: أجرينا استعراضاً سردياً لمؤلفات الدراسات التي تصف تكييف المبادئ التوجيهية للممارسات السريرية في إقليم شرق المتوسط. وُبحث في قواعد البيانات والمواقع الإلكترونية الرسمية عن الدراسات المنشورة في المدة بين عامي 2006 و2022. واستبعدنا المؤلفات التي تتناول استحداث مبادئ توجيهية للممارسات السريرية، وتكييف أنواع أخرى من المبادئ التوجيهية مثل، المبادئ التوجيهية للصحة العامة.

النتائج: حددنا فئتين رئيسيتين للتكيف في إقليم شرق المتوسط، ألا وهما: التكيف الرسمي، والتكيف غير الرسمي. واستُخدمت ستة أطر رسمية للتكيف: KSU-Modified-ADAPTE, CAN-IMPLEMENT, RAPADAPTE, GRADE-ADOLPMENT, Adapted-ADAPTE, ADAPTE. ولُجِّد جيداً في المؤلفات التحقق من فعالية المبادئ التوجيهية للممارسات السريرية التي كُيفت مع السياق المحلي.

الاستنتاجات: على الرغم من الاستخدام الناجح لأطر التكيف الرسمية للمبادئ التوجيهية للممارسات السريرية، فإنه لا توجد إرشادات موحدة دولياً لتحديد الإطار الأنسب لسياقات محددة للرعاية الصحية في إقليم شرق المتوسط. وقد اختلفت طريقة تكيف المبادئ التوجيهية للممارسات السريرية من مؤسسة إلى أخرى. وهناك حاجة إلى وجود أداة موحدة لتحسين مدى ملاءمة طرق التكيف التي تناسب السياق المحلي. ونحث بلدان إقليم شرق المتوسط وشركاءها على تسجيل مشروعاتها القديمة والجديدة الخاصة بتكيف المبادئ التوجيهية للممارسات السريرية تفادياً للازدواجية في توليف المبادئ التوجيهية.

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