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Review Article

Bridging the Gap between Evidence and Practice: An Experience of Guideline Contextualization, by the Family Medicine Department, North West Armed Forces Hospital, Saudi Arabia

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Abstract

Objective: This article aims to explore the reasons for the gap between guidelines and clinical practice, providing a real-world example of rapid adapting valid guidelines to a local context. **Design/ Methodology:** The rapid guideline contextualization methodology was adopted. Participants/ Intervention: 43 physicians from diverse medical background, and different seniority level shared in developing 8 concise guidelines' summaries for the most encounter clinical problems that family physicians face. They followed the adopted pathways and hold many meetings under supervision of a strategic task force team of 6 members from different clinical& administrative disciplines. **Results/outcomes:** Summary of recommendations, algorithms, patient leaflets, and audit criteria for each guideline were extracted and presented to enhance their applicability. **Conclusions:** Using the example of a Primary Health Care (PHC) in a big governmental hospital in Saudi Arabia, the effectiveness of the rapid adaptation and the system of contextualization of guidelines was proven.

Keywords: Clinical practice guidelines (CPGs); Evidence-based medicine; Adaptation; Contextualization

Abbreviations: SA: Saudi Arabia; MSD: Medical Service Department; CPGs: Clinical Practice Guidelines; EBM: Evidence Based Medicine; TQM: Total Quality Management; HTN: Hypertension; JNC: Joint National Commission; BHS: British Hypertension Society; SHMS: Saudi Hypertension Management Society; SINA: Saudi Initiative for Asthma Management; FMD: Family Medicine Department; NWAFH: North West Armed Forces Hospital; GAC: Guideline Advisory Committee; NICE: National Institute of Clinical Excellence; SIGN: Scottish Intercollegiate Guideline Network

Article Summary

- This paper features a successful experience of *Guideline Contextualization* in a *busy PHC setting*.
- Also, we give here an example of *rapid* Guideline adaptation using a strict methodology& optimum using of *available resources without extra funding*.
- We are stressing *certain values* which constitute-in our belief-

the secret of success behind our project & they could be repeated & extrapolated for similar projects& settings.

Introduction and Background

Clinical Practice Guidelines (CPGs) are [systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances."[1] CPGs are important because of [3]

- Rising health care costs and limited resources,
- Increased demand for care,
- Variations in service delivery among physicians,
- Lag between evidence and practice,
- Professional and managerial accountability, and
- The overwhelming amount of medical information available.

Additionally, an acclaimed systematic review demonstrated that "[w]hen acted upon, they [CPGs] have been shown to have the potential to improve both the process of care and patient health outcomes [2]." In 2005, during the second Arab Federation EBM conference at Cairo University, Gordon Guyatt, recommended that clinical problems be resolved by searching for a valid systemic review or evidence-based guideline as an efficient way to develop proper patient care rather than beginning with primary studies [4].

Over the past 25 years (after the advancement of EBM as an acknowledged paradigm shift in clinical decision-making), CPGs have become an increasingly popular tool for synthesizing clinical evidence, improving the quality of health care, and overcoming the variances in practice. However, this raises a vital question: What is the real condition of the practical application of CPGs?

Evidence from a variety of studies from all over the world highlights three subsidiary concerns: 1) Why do we not apply what we already know to medical care? 2) What is the validity of the guidelines within our purview? 3) Why is there a growing recognition that national guideline developers cannot account for every clinical problem?

As an example for the first concern, the famous 6th Report of the Joint National Committee on Detection, and Treatment of High Blood Pressure (JNC6) discussed the percentage of American patients discovered to have hypertension, how many of these patients are treated, and how many cases of hypertension were controlled: "Although awareness, treatment and control of hypertension have increased significantly over the past ten years in the United States, only half of patients are being treated and only 27% have their hypertension under adequate control [5]." An audit for one of the general practitioners' surgeries in southeastern England in April 2000 (as part of the Trainer curriculum for an Egyptian family Physician in Exeter University in agreement with Egypt MOH) indicated that only 47% of the hypertensive target population was regularly followed, and less than half was controlled. There are many more examples of this lack of application, with one study asking in its title, "Why don't family physicians follow CPGs for cancer screening [6]?" If we look to other specialties, we can find many similar articles: for example, "The prescription rate of guideline-recommended drug therapy for Atrial Fibrillation and Heart Failure is low [7-9]." and in Hamilton Ontario, a study found that the proportion of inpatients receiving clot prevention, as per the guidelines, was only 33% [10].

In terms of the second concern, the "growth in the number of guidelines without application of rigorous criteria for their production could undermine their credibility and lead to harm to the patient if the wrong recommendations were put into practice [11]."

Perhaps, given the uncertainty about how to develop guidelines and the lack of time or skill necessary for its appraisal (Figure 1), in addition to the different health authorities providing contradictory recommendations, there may be confusion about the grading and levels of evidence for each set of guidelines. These factors may contribute to the underutilization of guidelines: "Concerns about the quality of guidelines are one of the important factors that limit the acceptance and application of CPG by health care providers [12]."

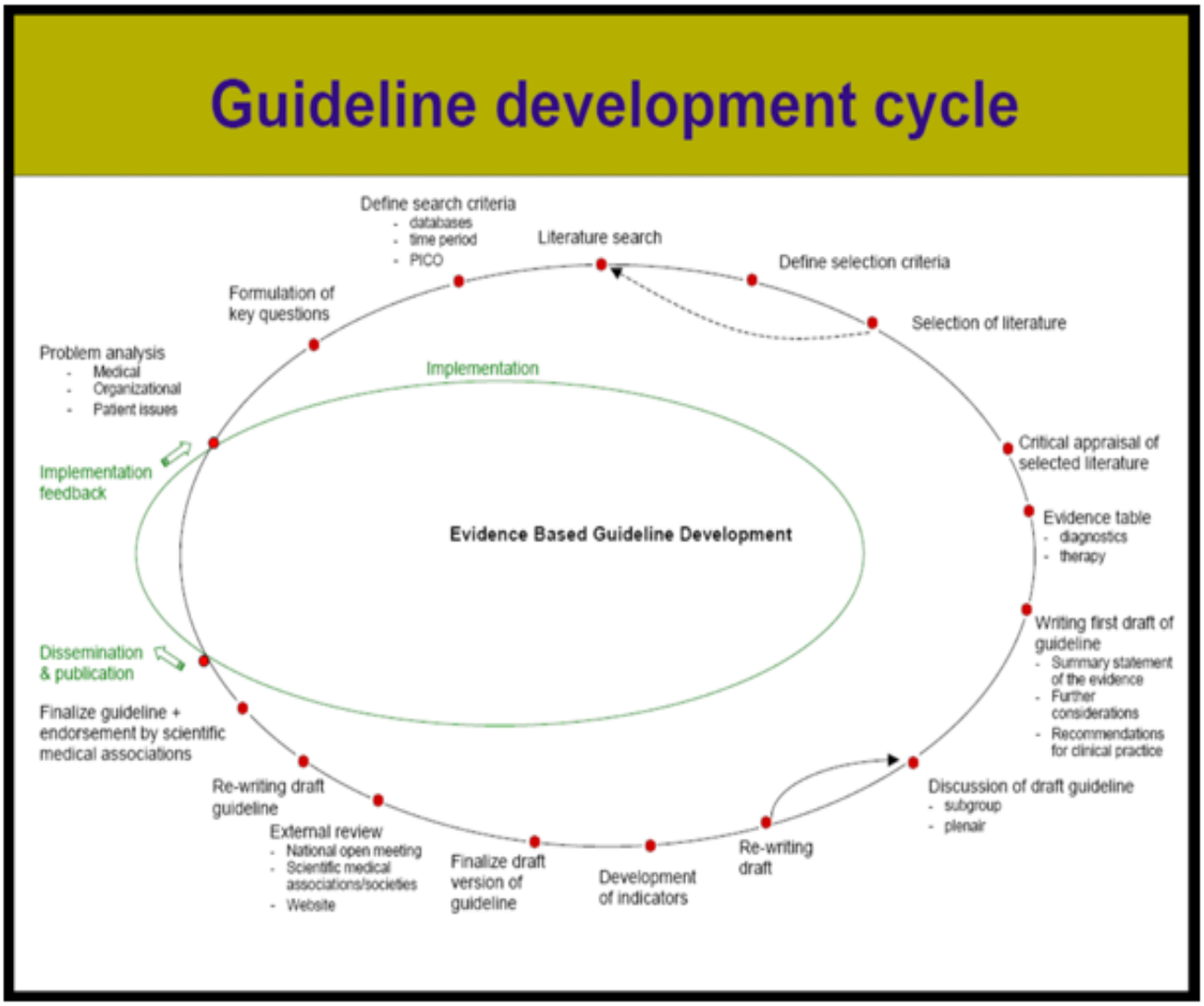

Figure 1: Criteria for developing effective guideline [19].

In terms of the third concern, there is a growing recognition that the national guideline developers cannot account for every clinical problem. With these concerns in mind, as well as other local considerations, several countries and health care institutions are currently encouraging "local adaptation" of high-quality international guidelines to avoid duplication of work, cost, and resources. These adaptations are also considered new publications, creating a sense of ownership. Adapted CPGs can be modified to fit local needs and resources, and one study claimed that "[l]ocal adaptation of high-quality clinical guidelines is a cost-effective and efficient way to produce high-quality national guidelines [13]." Figure 2 presents a simple method for this adaptation, and if this method was properly applied (at this time), it would ensure the development of better guidelines with minimal flaws. This is due in part to its capacity to account for local issues thoroughly, potentially optimizing applicability.

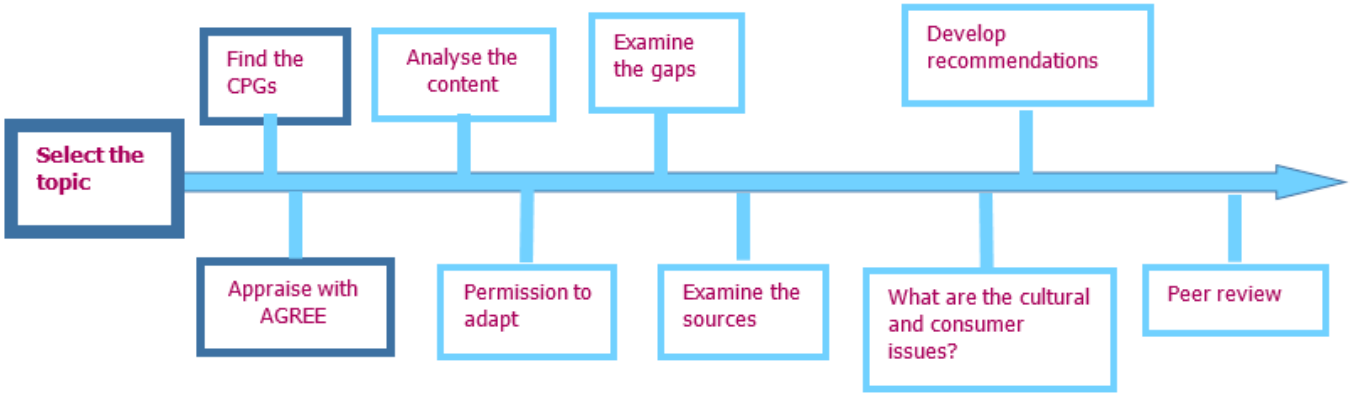

Figure 2: A suggested methodology for the local adaptation of clinical practice guidelines [21].

In Saudi Arabia, many local health care organizations started the adaptation process at the national level, such as the Saudi Hypertension Management Society (SHMS) and the Saudi Initiative for Asthma management guidelines (SINA), besides other efforts made through MOH or the special clinical societies.

In the Family Medicine Department (FMD) of the North West Armed Forces Hospital (NWAFH), we have begun a similar project on a smaller scale, seeking to standardize our practice and minimize the variance between physician practices. To this end, we have begun implementing clinical auditing and agreed-upon, evidence-based, and up-to-date clinical pathways to be approved by the MSD (Medical Service Department, the major division of the Ministry of Defense and Aviation, which supervises all relevant military health care facilities). Considerable training (predominantly in guidelines, adaptation, critical reading, and the major concepts of EBM) and research potential can be created here, and we believe that we have succeeded in creating a method for developing and disseminating CPGs that can optimize the applicability of guidelines in other contexts and build bridges between evidence and practice or, at least, narrow the gap between the two.

Our experience began back in March 2009 when the MSD sent a memo requesting a description of clinical pathways that could address each of the common health problems encountered in military health care facilities. In response to that, we aimed not only to satisfy the MSD's request but also to create a complete system of evidence-based guidelines, hoping to produce guidelines that would be more valuable, stable, repeatable, and applicable in our particular local context. This is a real need, we believe, for our department and other departments in NWAFH and beyond (Figure 3).

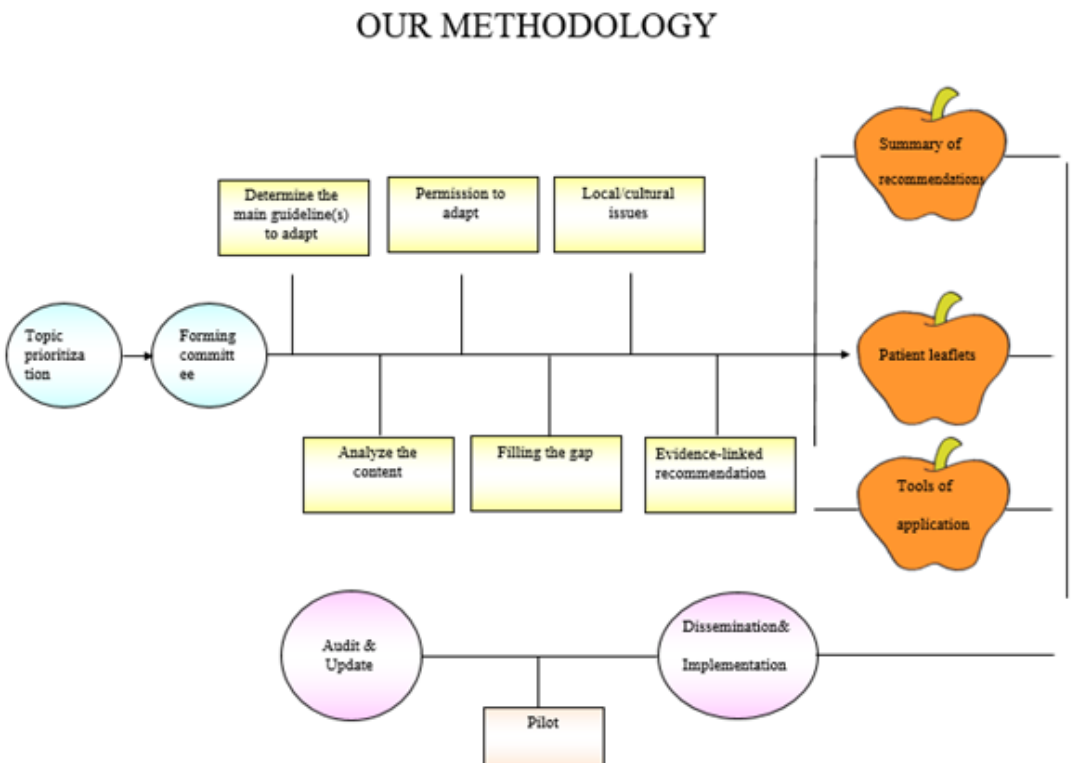

Figure 3: Our methodology.

Method

Guided by RAPADAPT framework [14], we assigned six task force groups (members of these groups volunteered to participate) for six important clinical areas. The groups had to list topics in their clinical areas that were of the utmost priority, and these topics served as their starting point for the project. The priority topics were common, serious, and potentially demonstrated the greatest variability in clinical practices. In our project, we did not appraise the recommended guidelines but we employed pre-appraised guidelines from the Guideline Advisory Committee (GAC; it was available online that time at http://www.gaccommittee.com/) or we used a valid well-known guideline portal such as the National Institute for Clinical Excellence or the Scottish Intercollegiate Guideline Network [15,16]. We filled in any identifiable gaps through subscription to the EBM guidelines [17], other guidelines, or our research. With each topic, we were mindful to review previous national and regional efforts of adaptation, guideline creation, and consensus that we believed reflected our culture and circumstances in relevant ways, especially in areas related to psychiatric diseases.

Action plan

The following section provides a summary of the three main questions used to guide the action plan:

I. Who are the target stakeholders?

1. Advisory board and mentors (internal peer reviewers)

a) The chief administrator of the FMD

b) The deputy director

c) The EBM supervisor

d) Two senior consultants

e) The Total Quality Management (TQM) coordinator

f) Others may be suggested according to their prior experience

2. A chairperson was chosen with experience as an EBM trainer for different local and regional health care authorities and with experience in teaching and evaluating different local and international guidelines.

3. Between five and six task force groups were created based on the interests of the candidates for these groups. The groups were categorized based on theme specialties as follows:

- Obstetrics-Gynecology
- Surgery
- Adult medicine
- Pediatrics
- Radiology/pharmacology/laboratory
- Psychiatry

- Each group preferably had four to six members.
- It was strongly recommended that membership in the groups be rotated so that every physician in the FMD was involved, oriented, and committed.
- It was also preferable that members of each phase and in each group represented a diversity of nationalities, genders, and levels of seniority, and that those with special interests in the suggested topics be involved.

II. How were they developed (Figure 4)?

1. Each group chose its top five to ten priorities for each theme.
2. Then, the top priorities for the coming year (according to department) were determined at an orientation meeting at which all concerned were present.
3. Each group agreed on the guidelines to be adapted based on whether they fulfill three conditions:

a) The guideline had to be relevant to primary health care.

b) The guidelines must have received three to four GAC apples or to be NICE/SIGN guidelines.

c) The guidelines must have been published in 2007 or later.

4. For each set of guidelines, four documents were prepared: Summary of Recommendations, Indicators for Auditing, Patient Leaflet (Arabic), and Tools for Application. To accomplish this, the members were required to meet regularly (generally, bimonthly) and share their ideas and responsibilities within an approved common vision.

5. At times, other concerned stakeholders (e.g., pharmacy, concerned departments, nurses, patient representatives, health educators, clerks, technicians, and representatives from pharmaceutical companies) could participate in specific meetings.

6. For each group, there was an internal coordinator (preferably not senior staff) to help the chairperson arrange the printing of materials, announcements, and other documents.

7. After completing their tasks, the chairperson of the committee and the head of the department announced a general meeting with all the physicians in the department, during which the members of a specific committee gave a briefing concerning the booklet and how it was developed. Time was then allotted for comments and feedback.

8. After addressing the relevant comments, a draft of the booklet was sent for a peer-review (done both within the hospital and externally). Then, the final booklet was prepared, and the agreed-upon clinical pathway was sent to the MSD.

9. Before distribution, a well-designed questionnaire for each topic was prepared as a pre-pilot survey and to allow staff to provide their input.

10. A three- to six-month pilot period was used to monitor the objectives.

11. After the pilot period, the group met to discuss any updates or concerns that needed to be addressed.

12. Finally, an updated version of each set of guidelines was sent to the other MSD branches.

13. Every two to three years, each guideline underwent an updating process (ongoing).

14. The above steps were repeated every year in the same order.

When were they developed?

The timeline is illustrated in Table 1.

Task	Time Limit
General orientation meetings and workshop	April 2009
Creation of the groups Agreeing on top priorities and guidelines	June 2009
Finalizing one set of guidelines for each group, including the peer review	Every two to four months
Piloting and recapping	Six months
Seeking MSD approval	
Clinical auditing and updating process	Ongoing throughout the project
Coming up with new suggested topics	Second batch

Table 1: Action plan timeline.

The first six months were spent creating the model for this new

project in our department, with application on the 1st finalized Guideline (Hypertension guideline). Figure 3 illustrates the flow of our project; as cycle, or Spiral and thus, an endless effort that follows the steps outlined which reflects our vision of progress and upgrading our services through the establishment of a structured system of evaluation concurrent with a Six Sigma Project.

Figure 4: Timeframe of the action plan.

Results

Our committee approved a list of 13 to 16 priorities to be accomplished within two years: 7 for 2010 and 6 for 2011. We distributed four documents for each guideline after the two peer-review processes: 1) the original document by the original publisher; 2) a summary of the recommendations after modification, with requested permission; 3) tools for their application, including clinical pathways; and 4) the indicators for clinical auditing. Items (2), (3), and (4) were distributed in an attractive pocket-sized, color-illustrated booklet, and a soft copy of these documents was available on each computer.

We completed the development and distribution hypertension Guideline on 2009, which was adapted from both JNC7 and British HTN Society (BHS) 2006. We considered this booklet as our benchmark that was replicated for the other booklets. It had 11 colored pages and was pocket-sized; also, it included only 14 references, seven tables and figures, and four types of advertisements (posters/charts). Several other leaflets prepared during the pilot phase were distributed to all the regular clinics: an Arabic patient leaflet; two leaflets concerning common surgical subspecialty cases, which were designed for ease of reference; and one antenatal care leaflet. We established our baseline data regarding the auditing indicators through a structured, designed questionnaire that assessed the knowledge, attitude, skills, and behavior of target physicians. We witnessed that our colleagues were enthusiastic and supportive of the three booklets (i.e., hypertension, antenatal, and surgical referral), because they always carried them in their coat pockets or kept them in their clinic rooms. We also collected post-distribution data over two to four months. The details of the sets of guidelines, during different stages of development, are illustrated in Table 2 and Table 3.

Committee	Members	Meetings
HTN	3	Meetings on individual bases
Surgery	4	
ANC	6	9
Asthma	4	7
Pediatric	6	11
Psychiatry	5	12
Radiology	4	14
DM	6	6

Table 2: Status of the guidelines.

Total	Gender		Position		
43	M	F	GP	R	C
	25	17	13	18	11
Nationality					Total withdrawn
Egypt	Jordan/Syria		Pakistan/India	Sudan	Saudi Arabia
17	10		7	5	3
Notes: M: Male; F: Female; GP: General Practitioner; R: Registrar; C: Consultant					

Table 3: Basic description of the guidelines development group.

Discussion

The FMD at the North West Armed Forces Hospital had approximately 600,000 outpatient visits in 2008, amounting to more than 1,000 daily visits. A percentage of approximately 46% of about 90 physicians in our department held postgraduate qualifications relevant to the FMD (from consultants to senior registrars and registrars), and the remainder were general practitioners. These physicians (male and female) came from at least eight different medical backgrounds and represented seven nationalities and a wide range of ages; these factors indicated the challenge of mastering the implementation of CPGs with minimum resources. It is our conviction that no changes in policy and administration can be achieved without sound principles. First, a vision and specific objectives are required, and there should be a commitment from higher management, and everyone involved. If all staff involved follows a system, focuses on the objectives, and celebrates successes, then change is possible. Additionally, of course, such endeavors are lost without proper documentation.

There is one particularly important point worthy of discussion related to the limitations of this research: the original guideline document was not appraised, and only the adapted version was evaluated. First, we recognize that there is a paucity of EBM experts; however, we believe that the essence of adaptation is critical reading and key to understanding local experience and practical local issues within the context of the most up-to-date and valid evidence. Additionally, we attempted to account for the lack of EBM experts by relying predominantly on benchmark guidelines, such as NICE or GAC, and by asking experts in Saudi Arabia to peer-review some of our documents. Also, we did not involve other health care providers, such as pharmacists and nurses within our team, as we believed that this was just a starting point, which could further develop and involve other staff members later.

Returning to the gap between guidelines and practice, is this gap a matter of not applying what we know, or might it be a lack of knowledge [18]? The importance of an attractive and user-friendly interface and a simple display must be mentioned, as well as the relevance of employing a variety of marketing techniques to market these valuable efforts. However, if the gap concerns applicability, there may be many explanations, such as medical knowledge increasing so rapidly that one cannot be expected to keep pace. What is more, information can be conflicting. Guidelines may restrict the individuation of care, or it may not reflect local applications. Some recommendations are flawed because they are not based on sufficient evidence, or they are based on the opinions of the group that developed the guidelines. Many of these limitations can be minimized through the adaptation process described above.

Strengths & Limitations

Our process is novel for the following reasons. (1) We matched needs and demands; in other words, we linked what is required (guidelines) with what is demanded (clinical pathways) using simple, available resources. (2) **Local adaptation:** we employed many valid international guidelines as well as nationally available guidelines to create our locally applicable recommendations. (3) **Cost-effectiveness:** we did not reinvent the wheel and develop de novo guidelines. We did not appraise guidelines that had already been appraised, and we did not simply use one set of well-known valid guidelines. We contended that there was no need to expand any effort on appraisal; instead, we focused on analysis, critical reading, and correcting defects in the fit to our local situation. (4) We deleted non-value-added text: besides validity, we concentrated on applicability. By minimizing the text, we aimed to omit all non-value-added statements in the clinical setting. (5) **Marketing:** we offered a pocket-sized booklet with more color illustrations (tables, figures). The booklet was concise, up-to-date, evidence-linked, and practically oriented. The user-friendly design of the booklet and posters and leaflets enhanced the booklet's marketability. (6) We put the guidelines to practice: (a) currently, it goes without saying to apply EBM concepts and principles; however, we went beyond the EBM theory, putting it into practice. This is the main concern of all EBM advocates throughout the world; (b) we focused on the essential practicality of each set of guidelines. Therefore, each set of guidelines included a patient leaflet to involve the patients as well as indicators for auditing, the most important of which was the implementation requirements. (7) **Available resources:** we benefited from the trials and experiments performed by many of our colleagues in our department. (8) **Teamwork and group dynamics:** within the groups, there was an ideal spirit of teamwork; tasks were distributed by accounting for members' experience and interests. (9) **Training/Education:** this experience was an optimal tool for teaching our staff about EBM, guidelines, and adaptation; and we focused on orienting junior staff who could continue these practices after us.

Conclusions

Despite the limitations of our adaptation method, we created an interactive display for a needed and meticulous project through effective teamwork, and this effort has been shown to be achievable and repeatable, especially in our region. We believe in rapid adaptation and the system of contextualization [19,20] for the guidelines, especially when it comes to primary health care in big governmental hospital institutions, which serve numerous patients on a daily basis besides offering training services either through the residency program and other training programs or through continuous professional development activities.

Declaration's Section/ Author Statement

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