

Implementing clinical guidelines: a need to follow recommendations based on the best evidence available

Implementação de diretrizes clínicas: a necessidade de seguir recomendações com base na melhor evidência disponível

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In the late 1970s, several countries began to develop clinical practice guidelines¹. Since then, the number of clinical guidelines in all areas of medicine has increased dramatically^{2,3}, mainly developed by hospitals, medical societies, public and private health care systems.

Health care systems all over the world have come up against challenges in improving patient care and safety, aiming to establish cost-effective intervention, i.e., ensuring high value interventions to handle different clinical situations and improve relevant clinical outcomes.

A study carried out in the USA showed that only 55% of adults had received the recommended care between 1999 and 2000⁴. Appropriate care was defined as evidence-based or in line with clinical guidelines that follow strong recommendation.

It is widely agreed that health care services should be based on robust evidence, although implementation of such is difficult, especially when they involve major changes to clinical routines. There is a need to take into account all sectors of society, including those who are socially vulnerable. The health care model should include level of education, employment status and behavioral characteristics to define the health care plan for a certain community⁵. Effective implementation strategies should take place across primary, secondary and tertiary levels of the health care system to improve clinical care.

Health care systems in developing countries differ from those in high-income countries in terms of availability of resources and access to services, particularly for more vulnerable sectors of society, and the incorporation of new, effective technology is often very costly and not readily available. Implementing high-quality guidelines should also

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envisage strategies for decreasing inequality, as this is a priority for effective clinical practice and public policies to meet population's needs. The World Health Organization (WHO) has recognized the importance of implementing clinical guidelines and the use of standardized methods as well as adaption in implementing clinical guidelines^{6,7}.

There is a series of articles published recently which highlights that clinical and public health guidelines have a role to play in promoting health equity by explicitly considering it in the process of guideline development⁸.

Although there are standards defined by WHO and other organizations, the availability of evidence-based clinical guidelines does not guarantee their implementation and application in clinical practice or the development of health policies appropriate to a given population. Thus, there is a recognized need to provide implementation tools as an essential element of a quality clinical guideline and also to present strategies for its implementation, as well as indicators, so that managers can measure their application in clinical practice^{9,10}.

A recent Cochrane systematic review emphasizes that a key function of health systems is implementing interventions to improve health, but coverage of essential health interventions remains low in low-income countries. This review has concluded that most of the available evidence is focused on strategies targeted at healthcare workers and healthcare recipients, and relates to process-based outcomes. Evidence of the effects of strategies targeting healthcare organisations is scarce. In summary, decision-makers may use a range of strategies to implement health interventions, and these choices should be based on evidence of the strategies' effectiveness¹¹.

In 2009, Chalmers, Glasziou and colleagues presented a series of articles published on *Lancet* that had great repercussion in the academy, pointing out that much research in the health sector is an unnecessary expense¹².

In this series, they have pointed out that published clinical trials on interventions often focus on efficacy, but do not clearly describe how these interventions were developed and executed. For example, a review of 80 studies, selected from the *Evidence Based Medicine* journal, in which valid and important articles for clinical practice were selected, found that physicians were able to replicate the intervention in only half of these studies¹³. Interventions may be misused or not used at all if they are not adequately presented in the protocol of clinical trial, in the conduct of the trial, in the systematic review, in the clinical guideline and finally during its implementation¹⁴.

Health care researchers are constantly producing original findings, but these are often not translated into health care practice. This gap represents part of a very broad problem in contributing to "unnecessary spending on research" and in producing and reporting research evidence^{12,15}.

Another critical point is that even with the effort to synthesize evidence in the form of a systematic review and then producing clinical guidelines, this process often is not translated into behavioral change. Health care professionals do not necessarily modify their clinical practice when new guidelines are published, and there are many examples in the literature showing gaps between clinical practice and recommendations from clinical guidelines. Therefore, it cannot be assumed that making a clinical guideline accessible on a website means that it will automatically modify clinical practice.

The term “knowledge translation” has been used for strategies that aim going beyond the dissemination of knowledge and emphasizing its application in clinical practice¹⁶. According to CIHR, “Knowledge Translation” is defined as a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of a population, provide more effective health services and products and strengthen health care system¹⁷.

This article enables reflection on this aspect and aims to help health care professionals implement clinical guidelines into routine clinical practice, identifying their barriers and facilities, as well as strategies for adapting clinical guidelines to local circumstances.

To implement clinical guidelines in clinical practice, it is necessary to identify a topic that is a priority, define target groups of stakeholders, national and regional clinical guidelines on the topic, evaluate the validity of clinical guidelines, adapt to local circumstances, outline strategies for dissemination and implementation, as well as monitor their impact. A good example is early detection of breast cancer in Brazil¹⁸. It is also necessary to identify the impact of the interventions and review the process flow, as well as value the integrity of organizations’ structural actions. Among the potential problems found in implementing clinical guideline, we identify a mismatch between the clinical guideline, the priorities defined and the available resources.

In order to overcome the barriers described above, implementation strategies are recommended. Implementation means applying the guideline in clinical practice, which characterizes going beyond mere diffusion of its text. Some of the most studied implementation strategies are academic detailing, audit-feedback, alerts, customized interventions and multifaceted interventions¹⁹. These strategies have been described on the Effective Practice Organization Care of the Cochrane Collaboration²⁰.

The strategy of academic detailing is based on using a consultant who goes to the health care professionals in their workplace and provides information about the guideline in order to achieve changes in clinical practice. An example is to show that educating physicians in their office is a promising strategy for changing medical practice, mainly through academic detailing, an intervention that combines interactive, one-on-one communication conducted by trained healthcare professionals, as shown in the adherence to guidelines for Group B Streptococci prenatal screening²¹.

The audit-feedback strategy is based on a performance evaluation of a health care service in terms of the guideline and subsequent action aimed at stimulating changes in practices identified as not appropriate, and the aim is to elaborate on the feedback piece.

Alerts or reminders are used to remind the health care provider of important aspects of the guideline at the time he/she is prescribing or performing some action within guideline recommendations. The use of alerts, targeted at patients or health care professionals, appears to be associated with better adherence to guidelines in several clinical settings without significant cost increases^{19,22}.

Customized interventions are a strategy in which barriers to implementation and other local clinical practice’s determinants are identified, and strategies for overcoming them are developed accordingly.

There is consistency in the literature on the efficacy of this type of intervention, although the best methods for identifying key determinants of clinical practice and selecting the best interventions to address them are still not well established²³.

Multifaceted interventions use various modes of implementation simultaneously and can benefit from the interaction of the effect of each²⁴.

Several examples of overscreening, extremely widespread in clinical practice, such as ultrasonography for asymptomatic carotid artery stenosis²⁵, resting or exercise electrocardiography for coronary heart disease in low risk individuals²⁶ and inappropriate screening for ovarian²⁷, prostate²⁸, breast²⁹ and thyroid cancer³⁰. On the other hand, interventions known to be effective for life-threatening conditions such as acute myocardial infarction are often not adequately implemented in clinical practice, especially in low and middle-income countries³¹.

The publication of the Guide of Guidelines in Brazil presents the best practice to develop, adapt and evaluate the quality of guidelines³². There is a need for health professionals, managers and others involved to implement clinical guidelines based on the methodology available in this area, which is not usually seen in practice. The development of these tools is not an activity exclusively of the Ministry of Health and Health State and Municipality Secretariat, as it is a tool that can be developed and adapted by a local health service, which can be a response for the needs identified.

The development and application of Health Technology Assessment (HTA) has expanded significantly in Brazil, although most of these studies have focused on technologies used in secondary and tertiary care. Therefore, there is great need to expand HTA in primary care, in order to strengthen the capability of the professional who's involved in health system's first contact. In order to improve the quality in primary health care, the Ministry of Health of Brazil has produced a Guide of HTA in Primary Health Care³³.

These publications and several initiatives of improving the learning experience on this area will entail the need to implement clinical guidelines that follow the recommendations based on the best evidence available.

REFERENCES

- Burgers JS, Grol R, Klazinga NS, Mäkelä M, Zaat J, AGREE Collaboration. Towards evidence-based clinical practice: an international survey of 18 clinical guideline programs. *Int J Qual Health Care*. 2003; 15: 31-45.
- Brozek J, Jankowski M, Placzekiewicz-Jankowska E, Jaeschke R. International Diabetes Federation document concerning postmeal glycemic control: assessment of quality of clinical practice guidelines using AGREE instrument. *Pol Arch Med Wewn*. 2009; 119: 18-24.
- Spuls PI, Nast A. Evaluation of and perspectives on guidelines: what is important? *J Invest Dermatol*. 2010; 130: 2348-9. <https://doi.org/10.1038/jid.2010.247>
- McGlynn EA, Asch SM, Adams J, Keesey J, Hicks J, DeCristofaro A, et al. The quality of health care delivered to adults in the United States. *N Engl J Med*. 2003; 348(26): 2635-45. <https://doi.org/10.1056/NEJMsa022615>
- Grol RP, Bosch MC, Hulscher ME, Eccles MP, Wensing M. Planning and studying improvement in patient care: the use of theoretical perspectives. *Milbank Q*. 2007; 85(1): 93-138. <https://doi.org/10.1111/j.1468-0009.2007.00478.x>
- Wang Z, Norris SL, Bero L. Implementation plans included in World Health Organisation guidelines. *Implement Sci*. 2016; 11(1): 76. <https://doi.org/10.1186/s13012-016-0440-4>

7. Grimshaw J, Freemantle N, Wallace S, Russell I, Hurwitz B, Watt I, et al. Developing and implementing clinical practice guidelines. *Qual Health Care*. 1995; 4(1): 55-64.
8. Welch VA, Akl EA, Guyatt G, Pottie K, Eslava-Schmalbach J, Ansari MT, et al. GRADE equity guidelines 1: considering health equity in GRADE guideline development: introduction and rationale. *J Clin Epidemiol*. 2017 Oct; 90: 59-67. <https://doi.org/10.1016/j.jclinepi.2017.01.014>
9. Gagliardi AR, Brouwers MC. Integrating guideline development and implementation: analysis of guideline development manual instructions for generating implementation advice. *Implementation Science*. 2012; 7(1): 1-9. <https://doi.org/10.1186/1748-5908-7-67>
10. Gagliardi AR, Brouwers MC. Do guidelines offer implementation advice to target users? A systematic review of guideline applicability. *BMJ Open*. 2015; 5(2). <https://doi.org/10.1136/bmjopen-2014-007047>
11. Pantoja T, Opiyo N, Lewin S, Paulsen E, Ciapponi A, Wiysonge CS, et al. Implementation strategies for health systems in low-income countries: an overview of systematic reviews. *Cochrane Database Syst Rev*. 2017 Sep 12; 9: CD011086. <https://doi.org/10.1002/14651858.CD011086.pub2>
12. Chalmers I, Glasziou P. Avoidable waste in the production and reporting of research evidence. *Lancet*. 2009; 374: 86-9. [https://doi.org/10.1016/S0140-6736\(09\)60329-9](https://doi.org/10.1016/S0140-6736(09)60329-9)
13. Glasziou P, Meats E, Heneghan C, Shepperd S. What is missing from descriptions of treatment in trials and reviews? *BMJ*. 2008; 336: 1472-4. <https://doi.org/10.1136/bmj.39590.732037.47>
14. Glasziou P, Chalmers I, Altman DG, Bastian H, Boutron I, Brice A, et al. Taking healthcare interventions from trial to practice. *BMJ*. 2010 Aug 13; 341: c3852. <https://doi.org/10.1136/bmj.c3852>
15. Migowski A, Dias MBK, Nadanovsky P, Azevedo e Silva G, Sant'Ana DR, Stein AT. Diretrizes para detecção precoce do câncer de mama no Brasil. III - Desafios à implementação. *Cad Saúde Pública* 2018; 34:e00046317. <https://doi.org/10.1590/0102-311X00046317>
16. Straus SE, Tetroe J, Graham I. Defining knowledge translation. *CMAJ*. 2009 Aug 4; 181(3-4): 165-8. <https://doi.org/10.1503/cmaj.081229>
17. Canadian Institute of Health Research [Internet]. Canada: Canadian Institute of Health Research [cited 2018 Feb 14]. Available from: <http://www.cihr-irsc.gc.ca/e/29418.html>
18. Instituto Nacional de Câncer José Alencar Gomes da Silva. Diretrizes para a detecção precoce do câncer de mama no Brasil. Rio de Janeiro: INCA; 2015.
19. Flodgren G, Hall AM, Goulding L, Eccles MP, Grimshaw JM, Leng GC, et al. Tools developed and disseminated by guideline producers to promote the uptake of their guidelines. *Cochrane Database Syst Rev*. 2016 Aug 22; (8): CD010669. <https://doi.org/10.1002/14651858.CD010669.pub2>
20. Cochrane Effective Practice and Organization Care. EPOC resources for review authors [internet]. Oxford (UK): Cochrane Effective Practice and Organization Care; [cited 2018 Feb 14]. Available from: <http://epoc.cochrane.org/resources/epoc-resources-review-authors>
21. Silva JM, Stein AT, Schünemann HJ, Bordin R, Kuchenbecker R, de Lourdes Drachler M. Academic detailing and adherence to guidelines for Group B streptococci prenatal screening: a randomized controlled trial. *BMC Pregnancy Childbirth*. 2013; 13: 68. <https://doi.org/10.1186/1471-2393-13-68>
22. Middleton P, Crowther CA. Reminder systems for women with previous gestational diabetes mellitus to increase uptake of testing for type 2 diabetes or impaired glucose tolerance. *Cochrane Database Syst Rev*. 2014; (3): CD009578. <https://doi.org/10.1002/14651858.CD009578.pub2>
23. Baker R, Camosso-Stefinovic J, Gillies C, Shaw EJ, Cheater F, Flottorp S, et al. Tailored interventions to address determinants of practice. *Cochrane Database Syst Rev*. 2015; (4): CD005470. <https://doi.org/10.1002/14651858.CD005470.pub3>
24. Grimshaw JM, Thomas RE, MacLennan G, Fraser C, Ramsay CR, Vale L, et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technol Assess*. 2004 Feb; 8(6): 1-72.
25. Jonas DE, Feltner C, Amick HR, Sheridan S, Zheng ZJ, Watford DJ, et al. Screening for Asymptomatic Carotid Artery Stenosis: A Systematic Review and Meta-Analysis for the U.S. Preventive Services Task Force. Rockville (MD): Agency for Healthcare Research and Quality (US); 2014. (Evidence Syntheses, No. 111). <https://doi.org/10.7326/M14-0530>
26. Moyer VA, U.S. Preventive Services Task Force. Screening for coronary heart disease with electrocardiography: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2012 Oct 2; 157(7): 512-8. <https://doi.org/10.7326/0003-4819-157-7-201210020-00514>
27. Moyer VA, U.S. Preventive Services Task Force. Screening for ovarian cancer: U.S. Preventive Services Task Force reaffirmation recommendation statement. *Ann Intern Med*. 2012 Dec 18; 157(12): 900-4. <https://doi.org/10.7326/0003-4819-157-11-201212040-00539>
28. Royce TJ, Hendrix LH, Stokes WA, Allen IM, Chen RC. Cancer screening rates in individuals with different life expectancies. *JAMA Intern Med*. 2014 Oct; 174(10): 1558-65. <https://doi.org/10.1001/jamainternmed.2014.3895>

29. Tomazelli JG, Migowski A, Ribeiro CM, Assis M, Abreu DM. Assessment of actions for breast cancer early detection in Brazil using process indicators: a descriptive study with Sismama data, 2010-2011. *Epidemiol Serv Saúde*. 2017 Jan-Mar; 26(1): 61-70. <http://dx.doi.org/10.5123/s1679-49742017000100007>
30. Ahn HS, Kim HJ, Welch HG. Korea's thyroid-cancer "epidemic"--screening and overdiagnosis. *N Engl J Med*. 2014 Nov 6; 371(19): 1765-7. <https://doi.org/10.1056/NEJMp1409841>
31. Lana MLL, Beaton AZ, Brant LCC, Bozzi ICRS, de Magalhães O, Castro LRA, et al. Factors associated with compliance to AHA/ACC performance measures in a myocardial infarction system of care in Brazil. *Int J Qual Health Care*. 2017 Aug 1; 29(4): 499-506. <https://doi.org/10.1093/intqhc/mzx059>
32. Brasil. Ministério da Saúde. Secretaria de Ciência, Tecnologia e Insumos Estratégicos. Departamento de Gestão e Incorporação de Tecnologias em Saúde. Diretrizes metodológicas: elaboração de diretrizes clínicas. Brasília: Ministério da Saúde; 2016. 96 p. il.
33. Brasil. Ministério da Saúde. Guia de avaliação de tecnologias em saúde na Atenção Básica. Brasília: Ministério da Saúde; 2017. 96 p. il.

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