

## Guidelines: necessary . . . but applicable?

Diretrizes: necessárias, mas aplicáveis?

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Guidelines can be defined as a set of recommendations systematically developed by a group of specialists on the basis of evidence in the current medical literature. Guidelines aim at assisting health professionals in decision making, as well as at assisting patients, under specific clinical circumstances, in adopting certain practices and behaviors.<sup>(1)</sup> The ultimate goals of this set of recommendations are to improve the quality of health care by decreasing the proportion of inappropriate decisions and to streamline the incorporation of advances in knowledge and technology into clinical practice. Guidelines contain specific recommendations that encompass the aspects that are considered critical and that will have the greatest impact. It is therefore necessary to develop protocols tailored to the situation or setting in which the guidelines are implemented.<sup>(2,3)</sup> However, the implementation of protocols does not have an immediate impact on the target outcomes. Failure to achieve these outcomes has been defined as “nonadherence” to recommendations, the responsibility for this “nonadherence” often being placed on patients. In addition to the variable “patient”, other factors might be associated with or implicated in the eventual failure of guidelines. Barriers to adherence can include characteristics inherent to the protocol or guideline, factors related to patients or health care providers—physicians, in this case—institutional factors, or factors related to the implementation process itself.<sup>(4)</sup>

In view of the fact that the mere availability of clinical practice guidelines have no immediate or direct effect on physician behavior,<sup>(5)</sup> Cabana et al., in a review of the literature, evaluated the major barriers to physician adherence to clinical practice guidelines.<sup>(1)</sup> In 120 different types of surveys, the authors found a total of 293 potential barriers. Those barriers were classified as being related to physician knowledge of the guidelines (lack of awareness or lack of familiarity), physician attitudes toward the guidelines (disagreement with

the recommendations, negative expectations regarding the target outcomes, low perception of self-efficacy, and lack of motivation due to the inertia of previous practice, habit, or established routines), or physician behavior due to external barriers (patient-related factors, guideline-related factors—such as contradictory recommendations—and environmental factors—such as lack of time, lack of resources, and organizational constraints).<sup>(1)</sup>

One systematic review showed that guideline-related factors, as well as factors related to patients, health professionals, and the setting, are associated with guideline adherence.<sup>(6)</sup> The adherence of attending health professionals is dependent on substantial, consistent changes in their behavior. The implementation of and adherence to guidelines in clinical practice are only parts of a process that involves multiple steps, from the planning and development of the guidelines to their full implementation, including the identification of possible obstacles to their widespread acceptance and adoption.

Before guidelines can in fact result in favorable clinical outcomes, they should first increase physician knowledge (dissemination of content) in order to alter attitudes and subsequently promote changes in behavior. This is attributable to the fact that behavioral changes are more durable and sustainable when they are based on knowledge and attitudes rather than on the mere suggestions or recommendations.<sup>(1)</sup> Behavioral change is a complex process that includes well-defined steps (precontemplation, contemplation, preparation, action, and maintenance). One investigation of those steps in other settings revealed that nearly half of the physicians evaluated were in the precontemplation stage and therefore were not apt to change their behavior (i.e., to adhere to the new recommendations).<sup>(7)</sup>

The adoption of strategies to overcome barriers or obstacles can be successful in one setting and unsuccessful in another, because the types of barriers differ. Therefore, efficacy

is dependent not only on the intervention itself (the development of recommendations) but also on the magnitude of the existing barriers.

In this issue of the Brazilian Journal of Pulmonology, Conterno et al.<sup>(8)</sup> report the impact of the implementation of a protocol for the initial treatment of patients with community-acquired pneumonia (CAP) at a general hospital. The authors prospectively evaluated the practice of care for patients with CAP in the ten-month period before the implementation of the protocol and compared it with that observed in the six-month period after the implementation of the protocol. During the study period, 102 patients diagnosed with respiratory infection were hospitalized in the clinical medicine ward, and, of those, 68 (66.6%) were diagnosed with CAP. The authors observed changes between the pre-implementation and post-implementation periods in terms of the pattern of antibiotic prescription, the major changes being an increase in the rate at which beta-lactam-macrolide combination therapy was prescribed—from 6.3% (3/48 patients) to 75% (15/20 patients);  $p < 0.001$ —which was in accordance with the guidelines, and the abandonment of the use of ciprofloxacin, which had been used in 18% (9/48 patients) during the pre-implementation period;  $p = 0.038$ .

Conterno et al.<sup>(8)</sup> found no improvement in the recording of certain procedures on the medical charts, procedures such as the protocol-driven use of a mortality prediction score and SpO<sub>2</sub> determination. The overall mortality rate was found to be similar in the two periods, although it is of note that the study did not have sufficient power to detect significant differences in this aspect. The influence of door-to-needle time could not be evaluated because a standard drug administration schedule was maintained. Other limitations of the study include the small sample size, the short observation times, especially in the post-implementation period—not covering a full seasonal cycle in either period—and the single-center nature of the study, which makes generalization difficult, especially if we consider the various potential settings, with their respective limitations and barriers to guideline adoption.

The major change observed by Conterno et al.<sup>(8)</sup> was related to antibiotic prescription, which, despite being one of the important points

related to the quality of care provided to patients with CAP, is only a part of the complex process of caring for such patients. Some of the fundamental aspects reflecting the quality of care are as follows: clinical and radiological diagnostic procedures; assessment based on a severity score and on SpO<sub>2</sub>,<sup>(9)</sup> which affects, at least in part, the decision about the place of treatment, as well as about treatment intensity and treatment optimization; the choice, route of administration, and timing of initiation of antibiotic therapy,<sup>(10-12)</sup> factors that impact on the risk of death; treatment duration; and criteria for hospital discharge. Even in an ideal setting, all of these aspects would have to be addressed in order for the primary outcomes (morbidity, mortality, and costs) to actually be achieved in a population of patients with CAP.

In a study conducted in Canada, Marrie et al.<sup>(13)</sup> evaluated the treatment provided to patients with CAP, comparing the use of a conventional strategy (at the discretion of the physician on duty), applied in 1,027 patients, with that of a critical pathway strategy, applied in 716 patients, the latter including standard diagnostic procedures, assessment of severity, selection of the treatment setting, choice of antibiotic therapy, determination of treatment duration, criteria for changing the route of administration, and criteria for discharge. The authors found that, when the latter strategy was applied, there was a statistically significant reduction in the admission of low-risk patients, a reduction in length of hospital stay, a reduction in the number of days on intravenous antibiotic therapy, a decrease in the number of bed-days required, and a greater proportion of patients receiving monotherapy (levofloxacin). In addition, they observed no increase in the rate of adverse events or complications.

It is important to bear in mind the significance of the initiative taken by Conterno et al.<sup>(8)</sup>, which includes various aspects related to care and to guideline adoption and which corroborates the recommendation that clinical practice guidelines should be tailored to local conditions, considering the epidemiological characteristics of patients, the structural and institutional conditions/needs, and the preparedness of attending physicians.

The recognition of the complexity of the process of developing and implementing clinical practice guidelines, as well as of the various factors involved in this process, can make guideline recommendations more applicable and provide significant, long-term improvement in the quality of care provided to patients with CAP or other diseases.

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## References

1. Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PA, et al. Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA*. 1999;282(15):1458-65.
2. Audet AM, Greenfield S, Field M. Medical practice guidelines: current activities and future directions. *Ann Intern Med*. 1990;113(9):709-14.
3. Chassin MR. Practice guidelines: best hope for quality improvement in the 1990s. *J Occup Med*. 1990;32(12):1199-206.
4. Cabana MD, Kiyoshi-Teo H. The broader picture on guideline adherence. *JPEN J Parenter Enteral Nutr*. 2010;34(6):593-4.
5. Lomas J, Anderson GM, Domnick-Pierre K, Vayda E, Enkin MW, Hannah WJ. Do practice guidelines guide practice? The effect of a consensus statement on the practice of physicians. *N Engl J Med*. 1989;321(19):1306-11.
6. Francke AL, Smit MC, de Veer AJ, Mistiaen P. Factors influencing the implementation of clinical guidelines for health care professionals: a systematic meta-view. *BMC Med Inform Decis Mak*. 2008;8:38.
7. Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: toward an integrative model of change. *J Consult Clin Psychol*. 1983;51(3):390-5.
8. Conterno LO, Moraes FY, Silva-Filho CR. Implementation of community-acquired pneumonia guidelines at a public hospital in Brazil. *J Bras Pneumol*. 2011;37(2):390-5.
9. Blot SI, Rodriguez A, Solé-Violán J, Blanquer J, Almirall J, Rello J, et al. Effects of delayed oxygenation assessment on time to antibiotic delivery and mortality in patients with severe community-acquired pneumonia. *Crit Care Med*. 2007;35(11):2509-14.
10. Gleason PP, Meehan TP, Fine JM, Galusha DH, Fine MJ. Associations between initial antimicrobial therapy and medical outcomes for hospitalized elderly patients with pneumonia. *Arch Intern Med*. 1999;159(21):2562-72.
11. Mortensen EM, Restrepo M, Anzueto A, Pugh J. Effects of guideline-concordant antimicrobial therapy on mortality among patients with community-acquired pneumonia. *Am J Med*. 2004;117(10):726-31.
12. Houck PM, Bratzler DW, Nsa W, Ma A, Bartlett JG. Timing of antibiotic administration and outcomes for Medicare patients hospitalized with community-acquired pneumonia. *Arch Intern Med*. 2004;164(6):637-44.
13. Marrie TJ, Lau CY, Wheeler SL, Wong CJ, Vandervoort MK, Feagan BG. A controlled trial of a critical pathway for treatment of community-acquired pneumonia. CAPITAL Study Investigators. Community-Acquired Pneumonia Intervention Trial Assessing Levofloxacin. *JAMA*. 2000;283(6):749-55.