

Why do doctors and patients not follow guidelines?

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Purpose of review

The aim of this review is to evaluate the factors related to the doctor and the patient that could make following the guidelines difficult. It also underlines the importance of the adherence to guidelines themselves in order to ameliorate both the control of healthcare and the patients' quality of life.

Recent findings

Following guidelines not only depend on factors related to guidelines themselves, to social–cultural context or to the strategies used to spread them: different studies have underlined that the characteristics linked to the doctor's and patient's subjectivity are crucial.

Summary

Guidelines are recommendations regarding clinical behaviour, and their implementation is a complex process that is influenced by different factors, related both to the characteristics of guidelines themselves and to the social, organizational, economic and political context or to implementation strategies. During the last few years, different studies and theories have tried to explain the reason why doctors and patients do not follow the guidelines. Following the guidelines most of all depends on the characteristics linked to the doctor's and patient's subjectivity, which can be a real obstacle. Knowledge, attitude, skills, experiences, beliefs and values play a fundamental role both in physician and patient. By addressing these issues to physician's and patient's adherence, more exhaustive approaches to guidelines development and spread can be applied in order to improve care and outcomes.

Keywords

adherence, guidelines, implementation

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Introduction

Guidelines are recommendations regarding clinical behaviour, which are made through a systematic revision process of medical literature and specialists' opinion. Their aim is to help doctors and patients to make the best decisions about treatment for a particular condition, by choosing the most appropriate strategies in specific clinical situations [1].

From the mid-eighties, various national and international guidelines regarding different diseases including allergic diseases [2–4] have been developed: they represent an important and suitable tool aimed at making the entire medical process more effective and efficient. However, although the effort made to develop and divulge evidence-based guidelines, results of studies conducted in the United States and Netherlands suggest that most of the time, guidelines are not applied: about 30–40% of patients do not benefit from a cure programme based on scientific

evidence, whereas 20–25% of therapeutic choices may be unnecessary and sometimes even harmful [5].

Guidelines implementation is a complex process influenced by different factors, some related to the characteristics of guidelines themselves, others to the social context or to implementation strategies (Table 1) [5,6*,7,8,9*,10–15].

Different theoretical perspectives should be explored when considering potential barriers to change and the consequent strategies in order to promote change [16]. The difficulty in carrying out complex changes in the clinical practice has also to consider all the barriers and factors related to the doctor's and patient's subjectivity [6*,7,8,9*,10–16].

This review is aimed to evaluate the factors related to the doctor and the patient that could make following the guidelines difficult.

Table 1 Factors that influence guidelines implementation not correlated to physicians and patients

Characteristics	Factors
Guidelines	Credibility [5] Complexity [6*] Evidence-based strategy [7] Triability [8] Degree of evidence of recommendations [5] Concreteness in the description of unexpected behaviours [5]
Context	Transparency and clear purpose [9*] Social and clinical norms and habits [10] System efficiency [11] Ethics [12] Compatibility of recommendations with the system of existing values in a specific culture [5] Kind of disease [5] Number of personal and organizational changes to make [5] Financial incentives [5] Standards of practice [5] Organizational characteristics [13]
Implementation	Communication strategies [14] Educational strategies and techniques [14] Use of incentives [15]

Difficulty in following prescriptions: explanatory theories

Many theories have been proposed in order to explain the doctor's difficulties in including recommendations in his clinical activity, and the patient's ones in adhering to prescriptions [5]:

- (1) Cognitive theories assume that thoughts, feelings and behaviours influence one another. In this perspective, the adherence mainly depends on the level of knowledge, on accessibility and relevance of the information, on the ways of thinking and on the personal balance of costs and benefits [17].
- (2) Behavioural theories suggest that mainly external stimuli are responsible for change modulation and attribute a primary role to feedback and conditioning processes, reinforcements (especially external ones) and modelling [18].
- (3) Andragogical theories underline the specificities linked to adult learning: adults are motivated to learn, are self-directed and responsible; they desire learning to be purposeful, relevant, practical and, most of all, immediately applicable. Adults are also more problem-centred than content-centred [19].
- (4) Social theories study the mechanisms that consider behaviours and attitudes (attitudes centrality, characteristics of communication and persuasion, characteristics of source and message) from an interpersonal point of view [20].
- (5) Marketing theories emphasize the crucial role of the message and its own characteristics in implementing changes [21].

On the basis of these theories, guideline adherence in real life has been the subject of different studies that analysed the factors that can influence adherence to treatment both in doctors and in patients.

Why do doctors not follow guidelines?

Two reviews of medical literature have identified the most important factors that could limit the doctor's non-adherence to guidelines [6*,22]. Analysing 76 different studies, 293 possible 'obstacles' have been identified and grouped in seven 'barriers', according to a common theme: the educational programmes and the incentives for compliance practitioners tend to perceive as barriers to guidelines implementation, and therefore they do not follow them in daily practice [23].

In order to ensure that guidelines recommendations have a real influence on the outcomes linked to patients, they must have an impact on the doctor's knowledge, on his attitude and behaviour. Although behaviour can change even in the absence of significant changes in knowledge and attitude, behavioural changes influenced by new knowledge and attitudes are more permanent compared with an indirect manipulation of the behaviour alone.

Knowledge modification can be impeded by the following factors:

- (1) Lack of consciousness about guidelines availabilities: it is difficult for the doctor to be aware of available guidelines and to be able to apply them properly and critically in clinical practice; over 10% of doctors ignore the existence of 78% of available guidelines.
- (2) Lack of familiarity towards guidelines: although the doctor knows that some recommendations for a particular disease are available, this does not guarantee his total familiarity with these documents.

Attitude modification can be influenced by the following factors:

- (1) Lack of agreement towards guidelines: doctors cannot accept a particular document, or the concept itself of the guidelines. In particular, about 10% of doctors consider guidelines inapplicable in clinical practice because they represent an excessive simplification, are not too useful and advantageous and are drawn up by specialists whose credibility is considered insufficient. Moreover, many doctors consider guidelines as something that could inhibit their autonomy and flexibility and make the doctor-patient relationship impersonal.
- (2) Lack of auto-effectiveness: the doctor may not trust his abilities in putting the recommendations provided by guidelines into practice, because of

burnout syndrome, stress, difficulties in updating and so on.

- (3) Lack of success expectations: if the doctor is quite sure that following the guidelines recommendations does not improve clinical outcomes, he will hardly be inclined to follow them. This can also depend on the fact that the doctor often thinks of the single patient, and this could prevent him from gathering a positive result considering all the population.
- (4) Lack of motivation and consolidation of habits in clinical practice can prevent the doctor from accepting changes.

Behavioural modification can be determined by the following factors:

- (1) External barriers: knowledge pertinence, together with a positive attitude towards changing, is a necessary but not sufficient factor that can guarantee guidelines adherence. As a matter of fact, the doctor can meet with external obstacles connected to the guidelines themselves (see below), to the environment (organizational factors, lack of resources, economic aspects) or to the patient. Payment and cost issues are the most cited obstacles to guidelines implementation [24].

Also, the inertia of previous practice caused by customs or habits may represent a barrier to guidelines adherence. Physicians may have difficulty changing deep-seated routines, despite the awareness and familiarity with the guideline itself. For this reason, it could be difficult for clinicians to develop new routines for chronic disease management [25].

Age, sex and country of the potential users may influence the predisposition [18]. However, other studies [26] show that there is no significant association between the general practitioner's (GP's) sex or professional experience and barriers.

Also, doctors' cognitive styles, such as evidence versus experience on the basis of knowledge, the conformity to local common practices and the sensitivity to concrete concerns, physicians' habits and customs, can constitute barriers to guidelines adherence [27].

GPs may not follow guidelines if they think that they are based on opinion, poor evidence or do not consider patients' values and preferences. Moreover, the recommendations and guidelines volume means that most GPs do not have time to read and memorize the full details of all guidance [28]. Time factors (for example the time spent performing services) and lack of local resources and legal issues (all the concerns related to liability) are also identified barriers to guidelines implementation [24,29•].

The attitude to guidelines varies according to the individual position on the professional hierarchy and on the function of the quantity of research activities. Organizational factors such as professional and patient turnover or lack of coordination among the different wards in the hospital also represent barriers to guidelines adherence [30•].

Why do patients not follow guidelines?

Nowadays, many effective diagnostic and therapeutic tools that offer the opportunity to identify and manage different diseases in a satisfactory way are available; however, when dealing with chronic diseases, a correct diagnosis and the most appropriate treatments are not sufficient to guarantee a health improvement. Adherence to therapy (the extent to which a patient can follow a health-care regimen) represents the crucial but underestimated point that enables the attainment and maintenance of objectives that would not be possible otherwise [31].

The WHO report [32] focuses on the importance of adherence and underlines that, in the current sanitary system, the attainment of a correct management of the therapeutic regime would have a greater impact on health in comparison with the investment of resources to improve medical treatment currently available.

Not following medical prescriptions in a correct way, or following them for an insufficient period of time, entails consequences that have a strong impact on patients, sanitary system and society: insufficient control of the symptoms, impact on the quality of life, loss of school and working days, disease progression, impairment increase, unjustified use of stronger drugs and/or with greater side effects, increase in unplanned examinations, and hospitalization.

The reasons why a patient is not adherent to treatment can be both unintentional (when cognitive, emotional, socio-economic and practical difficulties make a correct fulfilment of the entire therapeutic regime difficult) or intentional (on the basis of a subjective analysis of all costs and benefits related to the treatment, reasoned choices are made in order to decide whether to follow the therapy or modify it) [33].

Adherence to treatment can be considered as the result of the interaction among different variables concerning the patient himself, the disease, the treatment and the doctor-patient relationship [34]:

- (1) Variables related to the patient: some characteristics of the patient which seem to be linked to low-adherence are: the age (children, adolescents and elderly people show problems related to the development phases that influence adherence negatively), lack of social support,

psychiatric or psychologic comorbidity; cognitive and amnesic deficit, scarce or incorrect information about disease and treatments, difficulty in perceiving symptoms and admitting the pathological condition and previous history of nonadherence [6[•],22].

- (2) Variables related to the disease: chronicity and the fact that the symptoms are not always recognizable are factors that make reaching and maintaining the adherence to prescriptions more difficult.
- (3) Variables linked to the treatment: low adherence seems to be associated with a high number of daily doses to take, with the presence of side-effects, with complex therapeutic regimes, with the difficulty of taking drugs and with the external characteristics of the drug itself.
- (4) Variables linked to the relationship between doctor and patient: the quality of this relationship combines to determine the prescribed therapies' daily management. Patients seem to be more adherent to treatment when they can express their doubts, belief and expectations. A low level of satisfaction, both for the patient and the doctor, low-quality communication and an insignificant relationship are linked to low adherence, instead.

Moving towards a new system of guidelines development and dissemination

The need of effective and homogeneous guidelines stimulated the creation of a working group called Grading of Recommendations Assessment, Development and Evaluation (GRADE) whose activity is endorsed by the WHO [15,35]. The GRADE method is based on sequential steps that establish:

- (1) the quality of evidence across studies for each important outcome,
- (2) which outcomes are critical to a decision,
- (3) the overall quality of evidence across these critical outcomes,
- (4) the balance between benefits and harms, and
- (5) the strength of recommendations.

The quality of evidence indicates the extent to which one can be confident that an estimate of effect is correct; the strength of a recommendation indicates the extent to which one can be confident that adherence to the recommendation will do more good than harm. These judgments must be based on objective criteria and depend on clearly defined questions. Combining the above factors, the quality of evidence is established, and it can be ranged. In defining the strength of recommendations, the following parameters are considered:

- (1) the trade-offs, taking into account the estimated size of the effect of the main outcomes, the confidence

limits around those estimates and the relative value placed on each outcome,

- (2) the quality of the evidence,
- (3) the translation of the evidence into practice in a specific setting, considering important factors that could be expected to modify the size of the estimated effects, and
- (4) the uncertainty about baseline risk for the population of interest.

Apart from the methodological aspects, a great GRADE innovation in guidelines development is represented by the inclusion of available evidences about costs and patient's preference and values. This could enable bringing scientific evidence near to real life and applying the guidelines themselves easier. Nowadays, the GRADE system represents the best option to grade evidence and develop guidelines [36]. It has been now adopted by several of the major Scientific Societies [37] and by International guideline boards [38[•]]; also the Cochrane Collaboration suggests using it [39].

Apart from the 'better guidelines', a more exhaustive approach to their spread is welcome. In this way, the Global Alliance against Chronic Respiratory Diseases (GARD) (<http://www.who.int/respiratory/gard>), a WHO initiative, appears promising. GARD is a voluntary alliance of national and international organizations and institutions that work together in order to initiate a common approach to fight chronic respiratory diseases and improve lung health.

GARD's objectives include making recommendations for providing affordable and easy strategies for the diagnosis and the management of chronic respiratory diseases, tailoring those recommendations according to each country's healthcare system, variety of chronic respiratory diseases and so on. GARD aims to be represented at a national and international level in order to satisfy the specific needs of the different countries and promote health, especially for disadvantaged populations; moreover, it tries to carry out a global effort to ameliorate the diagnosis and the assistance.

Conclusion

Evidence-based guidelines provide an important contribution in medical care improvement; to achieve this goal, it is necessary that guidelines are effectively implemented into everyday clinical practice. Following guidelines should be of primary importance; failure in guidelines implementation has a strong influence on appropriateness of care, clinical efficiency, healthcare costs and patients' quality of life [33]. However, following guidelines not only depends on factors related to guidelines themselves, to social-cultural context or to

the strategies used to spread them; the characteristics linked to the doctor's and patient's subjectivity have to be taken into account. Knowledge, attitude, skills, experiences, belief and values play a fundamental role both in physicians' and patients' behaviour. The majority of studies that evaluate the guidelines implementation process examined only a single barrier, providing a partial view of a really complex picture; therefore, intervention programmes that fail to consider the variety of barriers to adherence are less likely to succeed.

Having guidelines structured with the same methodology and evidences gradation could be useful to spread the homogeneous scientific messages. Beyond the evidences of experimental trials on the effectiveness and use reliability, inserting the results of other data that express the relationship of costs–benefits and, most of all, the patient values and preferences could make guidelines more applicable in real life settings. Apart from having effective tools, the role of the scientific community is crucial and also of the institutions in guidelines implementation.

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References and recommended reading

Papers of particular interest, published within the annual period of review, have been highlighted as:

- of special interest
- of outstanding interest

Additional references related to this topic can also be found in the Current World Literature section in this issue (pp. 000–000).

- 1 Filed MJ, Lohr KN, editors. Clinical practice guidelines: directions for a new program. Washington, DC: National Academy Press; 1990.
 - 2 Bousquet J, Khaltaev N, Cruz AA, *et al.* Allergic rhinitis and its impact on asthma 2008 update. *Allergy* 2008; 63:8–160.
 - 3 Global Initiative for Asthma. Global strategy for asthma management and prevention. <http://www.ginasthma.com>. [Accessed June 2008]
 - 4 Zuberbier T, Bindslev-Jensen C, Canonica W, *et al.* EAACI/GA2LEN/EDF guideline: management of urticaria. *Allergy* 2006; 61:321–331.
 - 5 Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change. *Lancet* 2003; 362:1225–1230.
 - 6 Francke AL, Smit MC, de Veer AJE, Mistriaen P. Factors influencing the implementation of clinical guidelines for healthcare professionals: a systematic meta-review. *BMC Med Inform Decis Mak* 2008; 8:38.
- The results of this systematic meta-review underline the need to identify the real impact of implementation strategies.
- 7 Grilli R, Lomas J. Evaluating the message: the relationship between compliance rate and the subject of a practice guideline. *Med Care* 1994; 32:202–213.
 - 8 Rogers EM. Lessons for guidelines from the diffusion of innovation. *Jt Comm J Qual Improv* 1995; 21:324–328.

- 9 Carlsen B, Norheim OF. 'What lies beneath it all?': an interview study of GP's attitudes to the use of guidelines. *BMC Health Serv Res* 2008; 8:218.
- This study shows the results of a semi-structured interview of GPs who underline the need for more transparency in the development of guidelines processes and data about the economic impact of indication. GPs also underline the importance of being involved in the development.
- 10 Conroy M, Shannon L. Clinical guidelines: their implementation in general practice. *Br J Gen Pract* 1995; 45:371–375.
 - 11 Ellrodt AG, Conner L, Riedinger M, Weingarten S. Measuring and improving physician compliance with clinical practice guidelines: a controlled interventional trial. *Ann Intern Med* 1995; 122:277–283.
 - 12 Fox RD, Mazmanian PE, Putnam RW. Changing and learning in the lives of physicians. New York: Praeger Publications; 1989; pp. 161–175.
 - 13 Dijkstra R, Wensing M, Thomas R, *et al.* The relationship between organizational characteristics and the effects of clinical guidelines on medical performance in hospitals, a meta-analysis. *BMC Health Serv Res* 2006; 6:53.
 - 14 Davis DA, Taylor-Vaisey A. Translating guidelines into practice. A systematic review of theoretic concepts, practical experience and research evidence in the adoption of clinical practice guidelines. *CMAJ* 1997; 157:408–416.
 - 15 Petersen LA, Woodard LD, Urech T, *et al.* Does pay-for-performance improve the quality of healthcare? *Ann Intern Med* 2006; 145:265–272.
 - 16 Grol R, Dalhuijsen J, Thomas S, *et al.* Attributes of clinical guidelines that influence use of guidelines in general practice: observational study. *BMJ* 1998; 317:858–861.
 - 17 Beck A. Cognitive therapy and the emotional disorders. New York, NY: Penguin; 1993.
 - 18 O'Donnell JM. The origins of behaviorism: American psychology. New York, NY: New York University Press; 1985. pp. 1870–1920.
 - 19 Misch DA. Andragogy and medical education: are medical students internally motivated to learn? *Adv Health Sci Educ Theory Pract* 2002; 7:153–160.
 - 20 Bandura A. Health promotion by social cognitive means. *Health Educ Behav* 2004; 31:143–164.
 - 21 Black DR, Blue CL, Coster DC. Using social marketing to develop and test tailored health messages. *Am J Health Behav* 2001; 25:260–271.
 - 22 Cabana MD, Rand CS, Powe NR, *et al.* Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA* 1999; 282:1458–1465.
 - 23 Maue SK, Segal R, Carole L, *et al.* Predicting physician guideline compliance: an assessment of motivators and perceived barriers. *Am J Manag Care* 2004; 10:383–391.
 - 24 Ayres CG, Griffith HM. Perceived barriers to and facilitators of the implementation of priority clinical preventive services guidelines. *Am J Manag Care* 2007; 13:150–155.
 - 25 Cabana MD, Kim C. Physicians adherence to preventive cardiology guidelines for women. *Women's Health Issues* 2003; 13:142–149.
 - 26 Midlöv P, Ekesbo R, Johansson L, *et al.* Barriers to adherence to hypertension guidelines among GP's in southern Sweden: a survey. *Scand J Prim Healthc* 2008; 26:154–159.
 - 27 Green LA, Wyszewianski L, Lowery JC, *et al.* An observational study of the effectiveness of practice guideline implementation strategies examined according to physicians' cognitive styles. *Implement Sci* 2007; 2:41.
 - 28 Henegan C, Perera R, Mant D, Glasziou P. Hypertension guideline recommendations in general practice: awareness, agreement, adoption, and adherence. *Br J Gen Pract* 2007; 57:948–952.
 - 29 Prior M, Guerin M. The effectiveness of clinical guidelines implementation strategies: a synthesis of systematic review findings. *J Eval Clin Pract* 2008; 14:888–897.
- This study provides recent data about the factors that influence implementation strategies.
- 30 Saillour-Glénisson F, Domecq S, Pouchadon ML, Jacques B, *et al.* Combined quantitative and qualitative methods to identify local facilitators of and barriers to physician's adherence to clinical practice guidelines. *Rev Epidemiol Sante Publique* 2008; 3:207–219.
- This work clearly describes that organizational factors represent barriers related to guidelines adherence.
- 31 Sawyer SM, Aroni RA. Sticky issue of adherence. *J Paediatr Child Health* 2003; 39:2–5.
 - 32 Sabate E, editor. Adherence to long-term therapies: evidence for action. Geneva: WHO; 2003.
 - 33 Meichenbaum D, Turk DC. Treatment adherence: terminology, incidence and conceptualization. In: Meichenbaum D, Turk DC, editors. Facilitating treatment adherence. New York, NY: Plenum Press; 1997. pp. 19–39.

- 34 Majani G. Compliance, adhesion, adherence: critical points in the therapeutic relation. Milano: McGraw-Hill; 1991.
- 35 Atkins D, Best D, Briss PA, *et al.* Grading quality of evidence and strength of recommendations. *BMJ* 2004; 328:1490.
- 36 Atkins D, Eccles M, Flottorp S, *et al.* Systems for grading the quality of evidence and the strength of recommendations I: critical appraisal of existing approaches The GRADE Working Group. *BMC Health Serv Res* 2004; 4:38.
- 37 Schünemann HJ, Jaeschke R, Cook DJ, *et al.* An official ATS statement: grading the quality of evidence and strength of recommendations in ATS guidelines and recommendations. *Am J Resp Crit Care Med* 2006; 174:605–614.
- 38 Brozek JL, Baena-Cagnani CE, Bonini S, *et al.* Methodology for development of the Allergic Rhinitis and its Impact on Asthma guideline 2008 update. *Allergy* 2008; 63:38–46.
 - It provides a clear and detailed example of the application of the GRADE approach for compiling evidence and evaluating the quality of evidence and provides a grading of recommendation in updating Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines.
- 39 Schünemann HJ, Oxman AD, Vist GE, *et al.* Interpreting results and drawing conclusions [chapter #12]. In: Higgins JPT, Green S, editors. *Cochrane Handbook for Systematic Reviews of Interventions*, version 5.0.1. The Cochrane Collaboration; 2008. <http://www.cochrane-handbook.org>.