

What drives change? Barriers to and incentives for achieving evidence-based practice

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ONE OF THE MOST CONSISTENT FINDINGS in health services research is the gap between best practice (as determined by scientific evidence), on the one hand, and actual clinical care, on the other. Studies in countries such as the United States and the Netherlands suggest that at least 30%–40% of patients do not receive care according to current scientific evidence, while 20% or more of the care provided is not needed or potentially harmful to patients.¹

Reflecting on this failure of implementation, most experts in healthcare improvement now emphasise the crucial importance of acquiring a good understanding of the problem, the target group, its setting and the obstacles to change in order to develop more effective strategies for change.² For instance, a researcher may ask why some physicians in outpatient clinics have adopted strict surveillance of patients with diabetes through regular examination of feet and eyes and cardiovascular and renal risk assessments, while others have not. Is it because some physicians have a better understanding of guidelines, more support staff, more active self-care patients and/or greater financial incentives to change their behaviour? Although the answers to such questions could be crucial in developing targeted and effective implementation strategies, there is a dearth of quality overviews of factors relevant to effective implementation of evidence.¹ We aim here to briefly provide such an overview, to describe how barriers and incentives to change in practice can be identified, categorised and used to tailor interventions to facilitate desired change.

Theories and models

Most knowledge of barriers to and incentives for change is not derived from well designed prospective studies, but rather from observational studies and theoretical reflections. A summary of some of the theories and models relating to implementing change in diabetes care is given in Box 1. Most of the theories overlap, and most are not supported by scientific research on their ability to facilitate change in clinical practice. Nevertheless, they are useful for identifying potential barriers and promoters for change. For example, a study of the failing implementation of evidence on hand hygiene in the healthcare setting¹ identified a variety of barriers to change, including a lack of awareness, knowledge, reinforcement, control, social norms, leadership and facilities. Furthermore, the study showed that different

ABSTRACT

- To bridge the gap between scientific evidence and patient care we need an in-depth understanding of the barriers and incentives to achieving change in practice.
- Various theories and models for change point to a multitude of factors that may affect the successful implementation of evidence. However, the evidence for their value in the field is still limited.
- When planning complex changes in practice, potential barriers at various levels need to be addressed. Planning needs to take into account the nature of the innovation; characteristics of the professionals and patients involved; and the social, organisational, economic and political context.

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theories can indeed contribute to explaining the failure to adopt best practice. A survey of perceived barriers to implementing guidelines on diabetes care showed similar results (Box 2).

In attempting to categorise the determinants for change, two complementary approaches may be used, the first focusing on characteristics of individual professionals and the second on interpersonal factors and system characteristics.

Models relating to individual professionals

Individual professionals need to be informed, motivated and perhaps trained to incorporate the latest evidence into their daily work. For instance, Cabana et al⁴ used a “professional perception model”. Based on a review of 76 studies on barriers to guideline adherence, they identified salient factors as lack of awareness, lack of familiarity, lack of agreement, lack of self-efficacy (ie, the belief in one’s ability to perform a behaviour), low expectancy of favourable outcomes, inertia/lack of motivation, and perceived external barriers beyond the control of individuals. Empirical data showed that lack of awareness and motivation, as well as perceived external factors, were particularly important barriers to adopting guidelines.

Other models describe the stepwise change process that individuals need to undergo to alter their behaviour. “Stages-of-change” theories^{5–8} have mostly been used to distinguish between patients with different degrees of motivation to adopt better lifestyles, but are increasingly being used in research of implementation strategies. However, a systematic review of stage-based interventions has found only limited evidence for their effectiveness.⁹ Integrating

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1: Theories/models relating to implementing change to improve diabetes care

Theories/models	Important factors	Lessons for improving diabetes care
Relating to individual professionals		
Cognitive	Mechanisms of thinking and deciding; balancing benefits and risks	Provide convincing information on diabetes care evidence
Educational	Individual learning needs and styles	Involve professionals in improving diabetes care; define personal improvement plan
Attitudinal	Attitudes, perceived behavioural control, self-efficacy, social norms	Convince professionals of importance; show that they can do it and that others will follow
Motivational	Different motivational stages with different factors/barriers	Tailor interventions to different target groups (doctors, nurses, patients) within diabetes care
Relating to social context		
Social learning	Incentives, feedback, reinforcement, observed behaviour of role models	Model best practices of diabetes care; give feedback on progress
Social network and influence	Existing values and culture of network, opinion of key people	Use opinion leaders in network to improve routines
Patient influence	Perceived patient expectations and behaviour	Involve patients actively in improving their care; stimulate self-management
Leadership	Leadership style, type of power, commitment of leader	Obtain commitment of management to improving diabetes care
Relating to organisational and economic context		
Innovativeness of organisation	Extent of specialisation, decentralisation, professionalisation, functional differentiation	Take into account type of organisation; encourage teams to develop their own plans for change
Quality management	Culture, leadership, organisation of processes, customer focus	Reorganise processes for diabetes care; develop systems for continuous improvement
Complexity	Interactions between parts of a complex system, behavioural patterns	Focus on system as a whole; find main "attractors" for improving diabetes care
Organisational learning	Capacity and arrangements for continuous learning in organisation	Encourage continuous exchange of expertise on diabetes at all levels of organisation
Economic	Reimbursement arrangements, rewards, incentives	Reward achievement of treatment targets in diabetes care

various stages-of-change theories, we have compiled a 10-step model for inducing change in professional behaviour (Box 3). Studies are under way to test the validity of these steps.

Models relating to interpersonal factors and system characteristics

Healthcare professionals work in specific social, organisational and structural settings involving factors at different levels that may support or impede change. For instance, the "PRECEDE-PROCEED" model^{7,10,11} makes a distinction between "predisposing factors" (eg, knowledge and attitudes in the target group), "enabling factors" (eg, capacity, resources, availability of services) and "reinforcing factors" (eg, opinions and behaviour of others). Systematic reviews of studies on effective implementation of evidence and guidelines^{12,13} have shown that strategies that take into account factors at all three levels (predisposing, enabling and reinforcing) are the most successful.

Many quantitative and qualitative studies have shown that failure to implement evidence involves factors at different levels of the healthcare system (including characteristics of professionals and patients; team functioning; influence of colleagues; organisation of care processes; available time,

staff and resources; policymaking and leadership).^{14,15} The example of barriers to implementing guidelines on diabetes care (Box 2) underlines such findings.

A multilevel approach to examining barriers and incentives for change

Based on analyses of the literature and research conducted at our research centre, we propose that barriers and incentives be examined at six different levels: the innovation itself, the individual professional, the patient, the social context, the organisational context, and the economic and political context (Box 4). Relatively little attention has been given so far to research on characteristics of the innovation itself that affect its likelihood of being implemented.¹

Tailoring strategies to bring about change

Information on potential barriers and incentives for change can be obtained in various ways, including interviews, surveys, focus groups, Delphi methods, observation in the care setting, auditing records of routinely collected data, and analysis of documents. This information can be used to tailor implementation strategies.

2: Perceived barriers to implementing guidelines on diabetes care, from a survey of physicians in general hospitals in the Netherlands³

	Proportion of respondents citing reason (n=96; 91% response rate)
Cognitive factors	
Guideline will not be read	44%
Insufficient evidence base	35%
Lack of knowledge of complications	34%
Attitude of physicians	
Guideline too rigid	56%
Use of guideline costs too much time	54%
Don't like imposed activities	50%
Social and organisational context	
No support by management	44%
Disagreement among physicians	35%
Heavy workload of physicians	81%
Lack of necessary staff	46%
Economic context	
No financial compensation	57%

There is limited evidence to show whether tailored interventions are more effective. We do know that some efforts at tailored intervention have been unsuccessful. For instance, a UK study of general practitioners used face-to-face interviews, guided by psychological theory, to identify barriers to implementing guidelines on depression.¹⁶ However, this tailored intervention did not change professional performance any more than distribution of the guidelines only. Another study, in Norwegian general practice, on guidelines for sore throat and urinary tract infections used multiple methods to identify barriers to change: observations, telephone interviews, a postal survey and data extracted from medical records.¹⁷ A multifaceted intervention was developed, tailored to the problems found, including a short summary of the guidelines, patient education materials, computer-based decision support, extra fees for telephone consultations, and interactive courses for professionals. Despite this intensive intervention, no change in the main outcomes was found. Process evaluations after completion of the project suggested that lack of time and resources contributed significantly to this failure.

Thus, we still lack the information on how to effectively tailor interventions to produce change. Some new methods, such as “intervention mapping”, are being devised, but their usefulness is yet to be tested.¹⁸

Conclusion

Although we are now aware of the importance of understanding factors that facilitate or hinder change in clinical practice, we still lack in-depth knowledge of which factors

3: Potential barriers/incentives in relation to a proposed 10-step model for inducing change in professional behaviour⁶

Orientation	1 Promote awareness of innovation <ul style="list-style-type: none"> • Level of interest in reading and continuous education 2 Stimulate interest and involvement <ul style="list-style-type: none"> • Degree of contact with colleagues • Experience of need for innovation
Insight	3 Create understanding <ul style="list-style-type: none"> • Available knowledge and skills • Ability to remember information 4 Develop insight into own routines <ul style="list-style-type: none"> • Attitude (open-minded or defensive) • Willingness to acknowledge gaps in performance
Acceptance	5 Develop positive attitude to change <ul style="list-style-type: none"> • Ability to perceive advantages of change • Opinion of scientific merit of change • Opinion of credibility of innovation source • Degree of involvement in development process 6 Create positive intentions/decision to change <ul style="list-style-type: none"> • Perception of self-efficacy; degree of confidence in own skills • Perception of potential problems of putting change into practice
Change	7 Try out change in practice <ul style="list-style-type: none"> • Perception of practical barriers (time, staff, money) • Opportunity to try change on small scale 8 Confirm value of change <ul style="list-style-type: none"> • Whether first experiences positive or negative • Degree of cooperation experienced and reaction of patients and colleagues • Side effects (eg, higher or lower costs)
Maintenance	9 Integrate new practice into routines <ul style="list-style-type: none"> • Willingness and ability to redesign processes 10 Embed new practice in organisation <ul style="list-style-type: none"> • Whether procedures in place for constant reminding • Availability of supportive resources • Degree of support from management

4: Barriers to and incentives for change at different levels of healthcare

Level	Barriers/incentives
Innovation	Advantages in practice, feasibility, credibility, accessibility, attractiveness
Individual professional	Awareness, knowledge, attitude, motivation to change, behavioural routines
Patient	Knowledge, skills, attitude, compliance
Social context	Opinion of colleagues, culture of the network, collaboration, leadership
Organisational context	Organisation of care processes, staff, capacities, resources, structures
Economic and political context	Financial arrangements, regulations, policies

are decisive in achieving which changes, in which target groups and which settings. Better use and testing of existing theories in prospective trials may help us, along with studies to test the implementation processes, in-depth analyses of putative success/failure factors, and meta-analyses of research on improvement programs. In the absence of this knowledge, the success or failure of an implementation intervention may well be left to chance.

Competing interests

None identified.

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