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Viewpoint

Changing the clinical behaviour of doctors: a psychological framework

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There is growing concern about the long delays that occur before doctors implement the findings from new research. It is also of concern that the clinical practice of different doctors can vary widely.[1] Consequently the problem of changing the behaviour of doctors to comply with recommendations of new research or guidelines is one of considerable interest.

Several methods have been used to change the clinical behaviour of doctors, including guidelines, reminders, reading materials, feedback, continuing education, and sanctions. The potential role of guidelines has attracted particular attention.[2 3] A review of studies of the use of guidelines concluded that they can lead to changes in performance but that the extent of change varies widely and depends on the methods of implementation that are used.[4] In a review of 102 studies of strategies for change no single method emerged as effective in changing behaviour in all circumstances and settings, but most strategies were occasionally effective.[5] Because of the disappointing findings that single strategies do not necessarily promote change, there is increasing interest in the effectiveness of combinations of strategies.[6 7]

Success in changing the clinical behaviour of doctors working in a specific setting may be more likely if the change strategy is chosen to fit the setting and circumstances. Several arbitrarily selected strategies used together could be inefficient and not necessarily more effective than a single, appropriate strategy. However, information about which strategy is most effective in different circumstances is limited. Grol produced a classification of change strategies for implementing guidelines which takes into account the different obstacles to change that might be relevant to doctors who are "early adopters", the "majority", or "late adopters".[8 9]

Grimshaw and Russell also proposed a basic framework for classifying strategies for implementing change.[10] After reviewing the effectiveness of guidelines, they classified strategies into groups with high or low probabilities of effectiveness. The characteristics of high probability methods included participation in development of guidelines, dissemination involving specific educational interventions, and patient specific reminders at the time of consultations. These authors, however, acknowledged that the evidence available on the relative effectiveness of different strategies was sparse. Lomas developed a coordinated implementation model that integrates four approaches to help to understand doctors' responses to implementing guidelines: social influence theory, marketing theories, educational theories, and research studies into the diffusion of innovation.[11] The model is intended as an alternative to traditional passive education to implement change and does not include a stage for the analysis of the specific obstacles to change that might be encountered in different, discrete clinical settings.

An ideal model or framework of methods for changing the clinical behaviour of doctors would indicate what obstacles to change might be encountered in different circumstances and which change strategies would then be most appropriate. An analogy that helps to illustrate how obstacles to change might be identified and strategies chosen to overcome them is the approach used by clinicians in diagnosing a disease and selecting a treatment. In diagnosing a disease or syndrome, clinicians will refer to a body of knowledge – or "theory" – to interpret the symptoms of the patient and to guide the search for additional confirmatory symptoms and signs that indicate presence of the disease; the "theory" also indicates which treatment is most likely to be beneficial.

The aim of this paper is to introduce a framework which provides a structure for arranging and applying existing knowledge of behavioural change. This is neither a complete model nor a comprehensive review of all theories of behavioural change. It is an approach that can be used to apply available knowledge to diagnose obstacles to change and then select appropriate treatments or strategies to overcome those obstacles and thus improve the clinical practice of doctors.

Framework of theories of behavioural change

The proposed framework uses mainly psychological theories. A theory in psychology can be defined as an organised collection of ideas which serves to predict what a person will do, think, or feel.[12] Although the methods used to test or to apply such theories in psychology may differ from those used in medical practice, the importance of basing practice on theories is equally important in both disciplines.[13] Psychologists have formulated many different theories to describe and explain human

behaviour and propensity to change. Some of these explain behavioural change predominantly at a personal level,[14-17] some examine behaviour of the group,[18-20] and others examine behaviour of the organisation.[21 22] The framework proposed here incorporates these three categories and uses selected theories to link the process of diagnosing or identifying the obstacles to change with strategies that are predicted, by the theories, to have a high chance of success. In the context of the National Health Service (NHS), obstacles to change may be encountered in the behaviour of individual doctors, in the composition and conduct of groups such as clinical firms or primary healthcare teams, in the structure and activities of larger organisations such as NHS trusts, or in the NHS as a whole.

Tables 1–3 show, by means of hypothetical examples, how a framework can help to identify obstacles to change and to select appropriate strategies. These are merely examples, and many more factors might be obstacles to change in settings throughout the health service. Furthermore, many theories can be used to explain behavioural change and only a small selection are shown. Table 1 shows an individual doctor failing to follow a clinical guideline, and psychological theories suggest several explanations. If the doctor thinks that he or she lacks the necessary knowledge or ability to change behaviour, the most helpful theory is that of self efficacy,[14 23] which considers the judgements a person makes about his or her ability to deal with change. In this case, to implement the guideline, the doctor must think that he or she has, or can acquire, the necessary knowledge and competence. The theory predicts that effective strategies to help the doctor would enhance the doctor's perception of competence, and so might include involvement in developing the guideline or improving expertise through training and positive feedback. A less effective strategy would be publication of the guideline alone or feedback showing poor performance, which reinforces the doctor's perception that he or she is lacking in competence.

Alternatively, guidelines may not be followed because the doctor is not ready to change. The theory of preparedness to change[15] outlines stages of change with reference to "precontemplators" (the doctors who are content with current practice and not motivated to change), "contemplators" (who have begun considering change), "actioners" (who are making the change) and "maintainers" (who are sustaining the change they have implemented). The theory would predict that if a doctor thought that his or her performance was adequate, and that change was not necessary, training and encouragement would probably be ineffective. Strategies that show the doctor the failings of current performance and the feasibility of change are, with the continued use of appropriate strategies, more likely to lead to a shift from precontemplation to contemplation or from contemplation to action. The success of providing feedback as a strategy to enhance preparedness to change is in notable contrast to its application to lack of knowledge where it is unlikely to effect change. This shows how the same strategy may be effective in one situation but not in another, depending on the obstacle to change that is present.

Equally, other psychological theories might fit as explanations for failure to adhere to guidelines. Implementation of guidelines may not occur because the guidelines in question are not perceived to be reputable. According to social influence theory guidelines are more likely to be implemented and adhered to when the message comes from a credible and respected source,[16 24] which explains why opinion leaders opinion can be effective. Implementation is less likely if the source of the guidelines seems to be compromised.[25]

If the doctor fails to implement the guideline because he or she rejects or denies the evidence of inadequate performance, the bereavement reaction (to the loss of the image of oneself as a competent doctor) predicts that further demonstration of failings would be of limited benefit.[17] The provision of a safe setting for the doctor to discuss and come to terms with the evidence, such as a carefully facilitated peer review group,[26] would be more likely to lead to effective steps to comply with the guideline. Confrontational strategies such as the publication of performance data may simply increase denial and make change unlikely.

Table 2 concerns the implementation of change in groups or teams of healthcare staff and shows the example of an audit organised in several different sites. One of the participating healthcare teams has failed to change

Table 1 Framework for integrating obstacles to change, theory, and strategies for change: the personal level

Observed behaviour	*Obstacle*	*Theory*	*Strategies: More effective*	*Strategies: Less effective*
Doctor not following a clinical practice guideline	Thinks he or she lacks knowledge/ability	Self efficacy[14]	Involvement in guideline development Practical support and training	Dissemination alone Feedback showing poor performance
	Practitioner unwilling to consider change (thinks current practice is good enough)	Preparedness to change[15]	Feedback showing poor performance	Practical support and training
	Source of guidelines perceived to be not reputable	Social influence[16]	Endorsement by respected opinion leader with no likely gain to self	Endorsement by group with commercial or political interest
	Denial (of evidence of performance deficiency)	Bereavement reaction[17]	Provision of safe and facilitated setting to admit deficiencies	Publication of performance league tables

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Table 2 Framework for integrating obstacles to change, theory, and strategies for change: the group level

Observed behaviour	*Obstacle*	*Theory*	*Strategies*	
			More effective	*Less effective*
A multisite audit has been organised but a healthcare team has failed to change clinical behaviour	Team members think that others will undertake the audit or change, so do nothing (social loafing and free riding)	Inverse social facilitation[18]	Assign individuals with identifiable responsibilities for the change and make each accountable	General education about how to effect changes
	Powerful minority of team think that change is unnecessary	Social comparison[19]	Introduce a few people with status and expertise to ally with less powerful team members	Suggest junior member of staff be responsible for implementing change
	Team spirit and morale are high; and opinion is that performance is very good	Groupthink[20]	Use of respected outsiders to challenge team ideas	Exhorting team to change behaviour

its clinical behaviour despite unsatisfactory findings about performance. In this example, one obstacle to change may be that team members think that colleagues in the team will implement change. In this case, they assume that individually they do not have to do anything, leading to a situation in which no one accepts responsibility.[18] Education in these circumstances would be relatively ineffective, but a practical strategy of allocating responsibilities to specific team members would be more effective. There are other obstacles that might be encountered within groups. A powerful subgroup in the team may resist change and the less powerful majority may feel obliged to conform. Social comparison theory suggests that to overcome such conformity the less powerful majority need allies with status or expertise to reduce the influence of the minority view.[19 27] This strategy has more chance of effecting the required change than the common approach of delegating the responsibility for implementation to a junior member of staff.

Good team spirit and conviction that the quality of care is exemplary can also be an obstacle to change. "Groupthink" describes this type of situation, in which leadership is respected and team cohesion is so strong that dissent is stifled: being an accepted team member is believed to be of more importance than challenging the prevailing opinions.[20] Strategies which challenge this belief may be effective in implementing change – for example, a review of the team members' self perceptions by respected outsiders such as facilitators or managers. On the other hand, simple exhortation to change behaviour, which is seen by the team as confrontational, will further suppress dissent by those members who otherwise would support change. The team will then discount the need for change in the continued belief in its own excellence.

At the level of the organisation, there are fewer psychological theories that are directly helpful in understanding obstacles to change. However, there are explanatory models from management science.[21 22] Economic theories may also be applicable, but these are not considered in this paper. Table 3 uses as an example the overuse of an expensive treatment by doctors in an organisation such as an NHS trust, when a cheaper alternative is supported by reputable guidelines and would be equally safe and effective. The choice of strategy again depends on the main obstacle to change. In one case it is postulated that doctors have ignored exhortation from managers to use the cheaper treatment, thinking that managers do not have sufficient expertise to judge clinical issues, and that their interference is a threat to "clinical freedom." Thus, doctors are using their "expert power" to reject encouragement from health service management.[21] An appropriate strategy may be to redefine the role of managers, giving them greater powers and clarifying their relationship with doctors.[28]

However, if the primary obstacle to change seems to be that doctors do not appreciate the consequences of their costly behaviour on colleagues and the rest of the service, theories of culture change suggest that it would be more appropriate to aid understanding through improved cooperation and communication between doctors, managers, and others.[22] A less effective strategy in overcoming this obstacle would be a managerial edict, which might have the effect of reinforcing professional isolation.

Conclusions

The framework proposed provides an approach to linking identified obstacles to change with strategies likely to be effective in tackling them through a body of knowledge of theories about

Table 3 Framework for integrating obstacles to change, theory, and strategies for change: the organisational level

Observed behaviour	*Obstacle*	*Theory*	*Strategies*	
			More effective	*Less effective*
Failure to implement national recommendations about use of an equally effective but less expensive treatment	Doctors reject the role of managers in discussing clinical issues	Power theory[21]	Change power relation	Exhortation
	Doctors do not appreciate the consequences of the expensive treatment for the service or for colleagues	Cultural change[22]	Doctor helped to perceive the problem from colleagues' and managers' perspective	Management edict

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behavioural change – a process similar to that of diagnosis and management of illnesses.

The framework has implications for future research into methods for implementing change. Research findings about implementation strategies should be interpreted in the light of specific obstacles to change. There are dangers in judging the effectiveness or otherwise of a strategy from a single study. Strategies that are reported as effective may be so only when a particular obstacle to change is present, and strategies that are ineffective may be effective when different obstacles are present. Thus, in future studies researchers should not merely report details of the clinical settings in which the studies were conducted but should also assess and describe the obstacles to change that were present.

Furthermore, research is needed to describe those obstacles that most often hinder doctors from adopting guidelines or the findings of clinical research. In undertaking studies of methods that might change the clinical behaviour of doctors, researchers will need to use the most relevant theories of human behaviour. If a specific theory is valuable in the choice of a change strategy it may also indicate that other strategies would be potentially effective and should therefore be evaluated. Research studies that are developed with explicit links to theory may also increase our understanding of the process of behavioural change in clinical practice.

The framework might also be valuable in practical attempts to encourage change in clinical behaviour. Local or regional groups who have been given the responsibility for implementing a clinical guideline may find this systematic approach particularly helpful, although the advice of a psychologist may be necessary. Other staff who could make use of the framework include clinical audit leads, audit support staff, and clinical directors in secondary care. The leaders of primary health-care teams may also find that the framework can help them to introduce protocols of care and other changes. However, those who help doctors to change their clinical behaviour need sufficient understanding of behavioural change to enable them to assess simply the obstacles that may be present. They can then select a strategy that is predicted by theories of behaviour, or one that has been shown by research studies, to be effective when used to overcome the identified obstacles.

In the past the choice of strategies to implement guidelines has usually been arbitrary, and perhaps made more in hope than expectation. By choosing several strategies to use at the same time, one or other of which might turn out to be effective, the chances of change may be increased. However, this scattergun approach is liable to be inefficient and is often impractical. A more rational approach would be to identify the obstacles to change and to target the choice of strategy with greater accuracy. This framework is the first step to such an approach.

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