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Education and debate

Personal paper: Beliefs and evidence in changing clinical practice

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▶ Introduction

That improvements are possible in many areas of clinical care has become increasingly clear. The different players within health care, however—clinicians, epidemiologists, health services researchers, educationalists, social scientists, economists, health authorities—often have different ideas on the best strategies to improve practice and the best way of making changes.

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▶ An example

Let us assume that aggregated data, collected by health authorities, disclose that the rate of caesarean section in a specific district is exceptionally high. A committee is formed with experts and representatives of various interests to develop plans for improving obstetric care. Hearing the problem, all are worried.

The clinician either denies there is a problem or proposes setting up a well designed course to increase clinicians' knowledge and skills.

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"OK," says the clinical epidemiologist, "but we first need to know what the evidence is on the indications for a caesarean section. We should perform a meta-analysis and come up with evidence based guidelines to disseminate among the obstetricians."

"No," says the educational expert: "that is a top down approach and such strategies will usually fail. Form small groups of doctors and let them discuss the problem, using cases and experiences from their own practices as the basis for local arrangements on new routines."

"We should take a look at the facts first," says the health services researcher. "Let us set up a multicentre audit first and collect data on actual variation between hospitals and include data on casemix. Feeding this information back to the hospitals will probably stimulate improvement."

"You are all focusing too much on the individual doctor," says the management expert. "The problem is not the doctor, but the system. We should analyse the process of decision making and performing the caesarean sections and see what structures determine the process. Next we need a quality improvement team."

"This is all too much talking," says the representative of the health authorities. "Doctors are sensitive only to what happens to their budgets. We need to put a pressure on them to limit the number of caesarean sections per hospital, give hospitals a reasonable budget, and provide the obstetricians with an incentive when they reduce the rate."

Summary points

Different players in health care use different approaches to changing clinical practice; most of these approaches are more based on beliefs than on scientific evidence

Implementing such changes seldom entails a single action; it usually demands good planning and a combination of different interventions

Before a strategy to implement change is selected the obstacles to change should be identified

Evidence based medicine should be complemented by evidence based implementation.

This discussion may continue for a while with no agreement being reached. The different parties all have an honest belief in the effectiveness of their strategies. They usually forget that their approach is based on one set of assumptions about human nature and on changing human behaviour and that there may be other valuable assumptions. This paper aims to provide an overview of some of the theoretical approaches to change and to integrate these approaches into a more general framework for changing clinical practice. The emphasis will be on changing the clinical practice of doctors and not on improving hospital management.

▶ **Approaches and theories**

Several authors have recently underlined the importance of studying the theories underlying different approaches to implementing guidelines and changing practice.^{1 2}

^{3 4} The overview in table 1 is certainly not complete: the approaches overlap, but each has its specific emphasis.

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Table 1 Approaches to changing clinical practice

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Educational approaches are strongly influenced by a phenomenological view of human personality.⁵ The basic belief is that change is driven by an internal striving for professional competence. Thus the strategies for improving practice focus on stimulating this motivation (learning from one's own experiences, problem based learning). Small group interactive learning, in particular, where participants have the feeling that they "own" the changes, fit well into such a theory. These approaches have increasingly found their way to professional education.⁶ Their strength lies in linking improvement activities to the actual problems and experiences of care providers.

Epidemiological approaches see humans as rational beings who make decisions on the basis of balancing rational arguments. If doctors do not take recent research findings into account then they probably lack convincing information on good care. The main strategies in this approach are to summarise the scientific literature and to develop evidence based guidelines. Credibility is important: the evidence should be sound, the guidelines valid, the procedure for developing the guidelines explicit and rigorous, and the organisation which sets the guidelines credible.^{7 8} Huge programmes aiming at developing such evidence based guidelines can be seen in various countries.⁹ The value of these approaches is in their emphasis on a sound proposal for change as well as in summarising the available evidence for busy practitioners.¹⁰

Marketing approaches emphasise developing and marketing an attractive product or message (a guideline or change proposal) which meets the needs of the target group and helps them to achieve their goals.^{11 12 13} The message has to be spread

through a variety of channels: mass media as well as personally, through networks of professionals, and using opinion leaders and key people in the network. The evidence on the effectiveness of marketing approaches is not straightforward. Their strength lies in emphasising the need to adapt proposals for change to the target group of clinicians, with their particular needs and perceived barriers to change.

Behavioural approaches are based on (classical) theories on conditioning and controlling behaviour.⁵ Human behaviour is seen as primarily influenced by (external) stimuli before or after a specific action. The main strategies fitting into these approaches are reviewing performance and providing feedback to care providers, giving reminders (signals before or during performance), and providing incentives or sanctions related to specific actions. Evidence supporting the effectiveness of these strategies has been found in many studies, particularly when feedback and reminding are continuous and directly connected to the patient contact.⁸

Social interaction approaches emphasise that learning and changing are achieved through the interaction with and influence of important other people.^{13 14 15 16} Various strategies for achieving change which have been shown to be effective fit well into this approach: using opinion leaders to spread the message in the network,¹⁷ outreach visits or facilitating by respected peers or experts who inform or support care providers,^{18 19} peer review and support in small local groups,²⁰ and patient pressure to use an innovation.²¹ The value of this approach lies in its emphasis on professional communication: care providers constantly look at each other for support, approval, role models, information, and feedback.

Organisational approaches do not focus on individual performance, but on creating the necessary conditions for change. Lack of good quality of care is basically seen as a system failure.²² New thinking on quality improvement relies on experiences from industry and on different management theories.^{22 23 24} So far there has been little scientific evidence on the effectiveness of these strategies, but experience in many health-care settings is very positive. Their value can particularly be seen in the emphasis on organisational and structural factors hindering change and in seeing care provision as a series of interrelated actions in which different people depend on each other.

Coercive approaches focus on pressure and control as a method for change. Developing laws and regulations, licensing and accreditation, budgeting and contracting, utilisation review, as well as complaints procedures and legal pursuits all fit well into these approaches. The research evidence for these approaches is meagre and not straightforward. Their value lies in the fact that many care providers are stuck in fixed habits and routines; some pressure from outside may be decisive in implementing and maintaining a desired change.

► What is the evidence?

At least 15-20 systematic literature reviews on implementing guidelines, research findings, and changes in clinical practice have been published in the past six years.²⁵ Some have analysed over 100 different trials and a variety of strategies. The results are not straightforward. Often the trial designs were not adequate and the interventions and outcome criteria not standardised. Strategies that proved to be effective in one study were ineffective in others. Research on many interesting strategies is still lacking.

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Nevertheless, some general lessons can be learnt. No method is probably really superior. Different change proposals (guidelines, research findings, new procedures) may demand different implementation strategies. Different groups of clinicians will experience different obstacles or may function at different levels of handling change. Implementing changes is usually not a single action but involves a well planned stepwise process, including a combination of interventions, linked to specific obstacles to change. In conclusion, all the different approaches for changing clinical practice may be valid and effective, provided that they are adapted to the specific features of the change proposal, the target group, the setting, and the obstacles to change encountered. A stepwise model is presented here in which these approaches are integrated.

► A model for implementing changes

This model consists of the following steps (fig 1).

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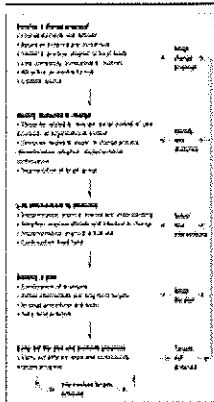


Fig 1 Stepwise, cyclical process of changing clinical practice

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- *Develop a concrete proposal for changing clinical practice*—Insight into the attributes of a clinical guideline or other proposal for change that determine its use in practice, is important, but largely lacking.²⁶ The different theoretical approaches give some indications of possible important features of a change proposal. The crucial elements of the expected performance should be precisely defined. Ideally the proposal should be based on sound evidence, convincing arguments, or consensus among opinion leaders and experts. On the other hand, evidence on the feasibility of the proposed performance in normal clinical practice and offering the possibility of adaptation of the proposal to local needs are equally important for its adoption. Representatives of all important groups should therefore be involved in developing the proposal. Preferably, it should be developed and disseminated by a group, team, or organisation which is perceived by the target group of clinicians as reliable and credible and it should be presented in an attractive, easily accessible format.
- *Identify obstacles to change*—Before the group selects one or more interventions or strategies to implement the change the obstacles to change should be identified.^{1 2 3 4} These are usually multifaceted and may be related to the individual clinician (knowledge, skills, attitudes, habits), to the social context of care provision (reactions of patients, colleagues, authorities), or to the organisational context (available resources, organisational climate, structures, etc). An example is given in the box. Different problems in implementing change in practice may arise, depending on the phase in the change process. The obstacles may be related to the "dissemination process" (for example, target group may not be aware of the change proposal or not be interested) or to the "adoption process" (the target group may be negative about the proposal because it is too complex or interferes with existing routines, or they may feel that the necessary resources are lacking). Obstacles may also be related to actual implementation and maintenance of the change because of lack of resources, relapsing into old routines, or not being satisfied about the results of the new performance. Care providers may operate at different stages in such a change process and may therefore need different approaches.
- *Link interventions to obstacles*—Different strategies may be needed at different phases in the change process and for

different target groups of clinicians. Understanding the target group well and knowing its needs and problems with changing is therefore crucial. Educational, epidemiological, and marketing approaches (table 1) seem to be particularly effective at the dissemination stage; marketing and social interaction approaches at the adoption phase; behavioural and organisational approaches at the implementation phase; and organisational and coercive approaches to maintain the desired performance. Often a single strategy is not enough: a combination is needed to achieve lasting change.²⁷

- *Develop a plan*—Once interventions have been selected the actual change process should be carefully planned. Usually it is not desirable to use all the interventions at once; they should be used in a series of small scale activities that can be finished and evaluated within short time.²³ Therefore concrete intermediate targets have to be set and the change process should be planned and scheduled according to these targets.
- *Carry out the plan and evaluate progress*—The different steps in the plan are then carried out. Continuous evaluation takes place. The results are used to determine whether the plan should be modified, whether specific obstacles have been overlooked (for example, the resistance of patients has been underestimated), or whether the change proposal proves to be inadequate or not realistic (the research evidence is conflicting or the guideline is not feasible in normal care).

Prevention of infections in nursing homes: implementation of a national consensus guideline on hand washing/disinfection

To implement a national, evidence based guideline on preventing infections in hospitals by hand washing and disinfection, a survey was performed in six nursing homes among 120 physicians, nurses, and paramedics, to identify the most important obstacles to change. The most important problems perceived in following the recommendations were (%):

Obstacles related to care provider (knowledge/attitudes/routines)

Complications are rarely seen	61
Relapsing into old habits	49
No "hard" evidence on usefulness	43

Obstacles related to social context

None is caring and controlling	50
No guidelines on this topic in our hospital	49
Management shows no interest	45

Obstacles related to organisational context

Damage and irritation to hands	65
Forgetting because of high workload	61
Not feasible in normal daily work	81
Costs too much time	50
No adequate equipment	42

Based on these obstacles a plan, with different actions and interventions, may be developed, containing:

- A simple educational brochure with evidence
- Group/unit meetings to discuss the guideline, the resistance to it, and how to overcome problems in implementing it
- A formal protocol, signed by management and spread among staff

- New soap/disinfections/tissues that will give less irritation to hands
- Reminders; regular self monitoring; regular observation by heads of units
- Comparing results between units and providing feedback
- Temporary support to solve problems and help units and care providers to achieve goals

Different theoretical approaches (educational, epidemiological, marketing, behavioural, social interaction, management, and power approaches) are used in changing performance

▶ Conclusions

When people are planning changes they often adopt a naive and opportunistic attitude. A strategy is usually chosen quickly and often does not produce the expected result. Yet our understanding of the crucial processes determining whether change will be achieved is still limited. Very little is known about what elements work or why.² Research efforts in evidence based medicine should therefore be complemented by research into how to implement this evidence in normal practice.^{28 29 30} Until we have gained a better understanding, the most practical advice to individuals responsible for

changing and improving practice is to be aware of their own assumptions about human behaviour and change. There are many approaches to changing clinical care for patients and implementing guidelines, all of which have some value and may be useful and effective, depending on the changes aimed at, the target group, the clinical setting, and the barriers and facilitators found there.

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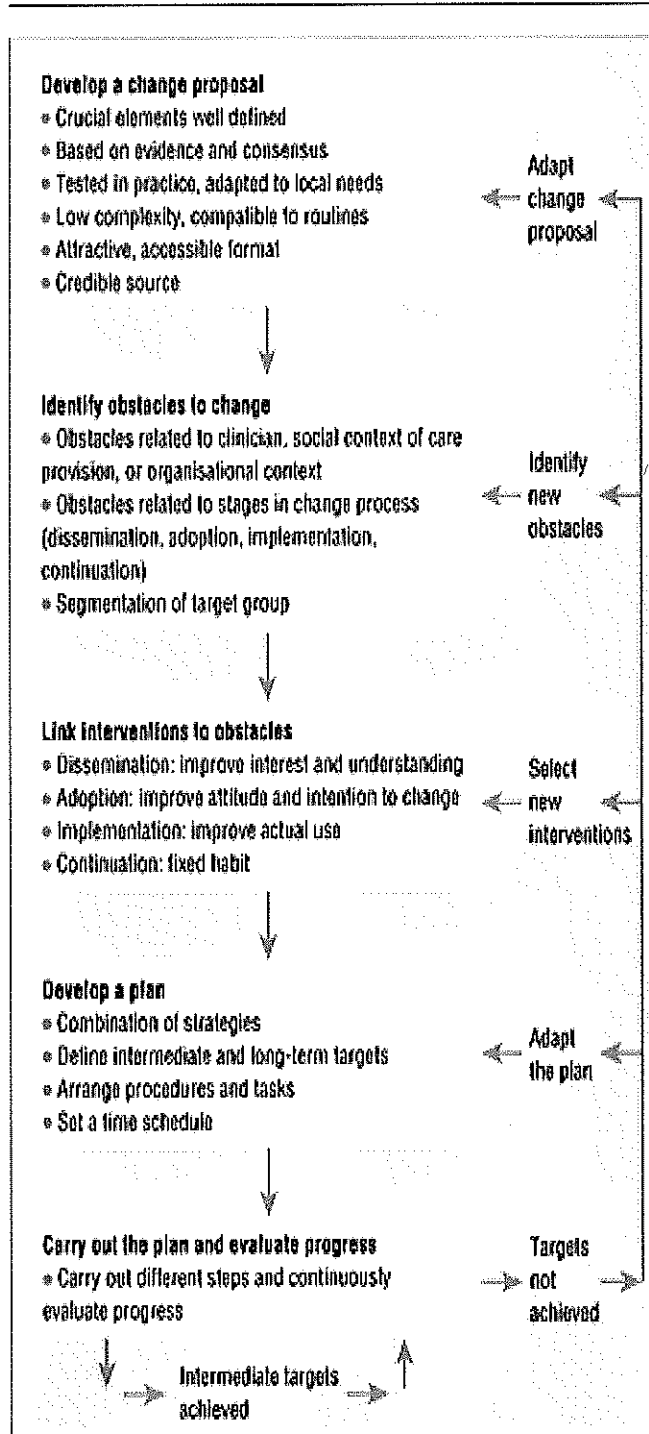
Table 1 Approaches to changing clinical practice

Approach	Theories	Focus	Interventions, strategy
Focus on internal processes			
Educational	Adult learning theories	Intrinsic motivation of professionals	<ul style="list-style-type: none"> • Bottom up, local consensus development • Small group interactive learning • Problem based learning
Epidemiological	Cognitive theories	Rational information seeking and decision making	<ul style="list-style-type: none"> • Evidence based guideline development • Disseminating research findings through courses, mailing, journals
Marketing	Health promotion, innovation and social marketing theories	Attractive product adapted to needs of target audience	<ul style="list-style-type: none"> • Needs assessment, adapting change proposals to local needs • Stepwise approach • Various channels for dissemination (mass media and personal)
Focus on external influences			
Behavioural	Learning theory	Controlling performance by external stimuli	<ul style="list-style-type: none"> • Audit and feedback • Reminder systems, monitoring • Economic incentives, sanctions • Peer review in local networks
Social interaction	Social learning and innovation theories, social influence/power theories	Social influence of significant peers/role models	<ul style="list-style-type: none"> • Outreach visits, individual instruction • Opinion leaders • Influencing key people in social networks • Patient mediated interventions • Re-engineering care process
Organisational	Management theories, system theories	Creating structural and organisational conditions to improve care	<ul style="list-style-type: none"> • Total quality management/continuous quality improvement approaches • Team building • Enhancing leadership • Changing structures, tasks • Regulations, laws
Coercive	Economic, power, and learning theories	Control and pressure, external motivation	<ul style="list-style-type: none"> • Budgeting, contracting

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Fig 1 Stepwise, cyclical process of changing clinical practice



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