EVIDENCE-BASED REPRODUCTIVE HEALTH

Evidence-based reproductive health care: getting evidence into practice

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The gap between evidence and practice
Clinical research continually produces new findings that can contribute to better patient care. However, such research cannot benefit patients unless doctors (and other health care professionals) adopt them in practice. A well-recognised time lag occurs between the emergence of research evidence and its incorporation into routine practice. This occurs because of delays in both compiling research findings in a systematic fashion[1] and a wide range of barriers to changes in clinical practice.[2] The problem ranges from the continued inappropriate use of ineffective practices to the failure to adopt new evidence-based practices. In this article we will examine some of the obstacles that stop us incorporating good evidence into practice, some ways to improve how we can identify evidence, and various approaches to improving clinical practice.

Factors influencing clinical practice
Changing clinical practice can be a deceptively complex or even chaotic process. The notion that the provision of new information necessarily leads to changes in practice in a linear fashion is the exception rather than the rule. The reasons why evidence is not 'simply' translated into practice relate to the characteristics of the desired change itself, the professionals involved, and the wider organisational environment.

The nature of new ideas
Some new practices do catch on and spread rapidly, especially once a 'tipping point' has been reached.[3] For example, demand for new gadgets (such as mobile phones in the 1990s) or fashions (such as permed hairstyles in the 1970s) tends to increase sharply when adopted by a critical mass of users. The 'tipping point' is related to one of many theories of how new ideas catch on and people change behaviour. Diffusion of innovations theory suggests that five key characteristics of an innovation influence whether an innovation is adopted or resisted. These are relative advantage to the user; compatibility with norms and values; complexity of the innovation; 'trialability' (the extent to which an innovation can be tried temporarily and discarded if found wanting); and 'observability' (whether the expected results can be easily seen).[4] This approach has been used to understand changes in gynaecology practice as part of a national audit project.[5] As expected, recommended clinical practices judged incompatible with gynaecologists' norms and values were least frequently used at the start of the project. However, audit and feedback led to the greatest improvements in the use of such 'incompatible' (but appropriate) practices. One explanation may be that audit and feedback can create the right conditions to challenge accepted norms and practices. In other words, it may help to buck trends.

Individual factors
The gap between evidence and practice may also relate to the limitations of our individual capacity to acquire new knowledge and skills, or change existing attitudes and beliefs. Changing practice can be a threatening process that generates uncertainty. For example, experience of a single untoward effect when prescribing a new drug can be sufficient to deter a doctor from ever using it again.[6] Physicians often know what they should do but may lack skills, or confidence, or time to do it. Intrauterine devices (IUDs) are a highly effective method for postcoital contraception, but are infrequently used for this purpose in general practice. Similar reasons may account for the low use of immediate postpartum insertion of IUDs despite their safety and effectiveness (although they have a higher spontaneous expulsion rate).[7] Sometimes doctors are unaware that their clinical practice is not based on the best available evidence. Physicians also tend to overestimate their own clinical performance.[8] For example, combined oral contraception is still sometimes prescribed in the presence of migraine with focal aura.[9]

Organisational and environmental factors
It is often too easy (and far too tempting) for shortcomings in health care to be attributed to the behaviour and 'faults' of physicians and other health care professionals. It is much harder to tackle the root causes of suboptimal performance, especially if related to the constraints of working within a complex organisation such as the UK National Health Service (NHS). Limited time and resources are amongst the most commonly mentioned reasons for failures to change practice.[2] Even introducing simple changes to practice can reveal hidden complications, such as restraints on prescribing across the primary-secondary care interface (e.g. newer methods of contraception such as the Mirena® intrauterine system). Changes in resource allocation may be required at higher policy levels to enable the introduction of effective practices with wider implications. Tackling appropriate testing for chlamydial infection in general practice with guidelines and training[10] is unlikely to be successful unless underpinned with resources to deal with the extra workload generated by the additional patients identified.[11]

Patients may also have expectations that conflict with evidence-based practice. In family planning and reproductive health clinical decision-making often depends upon enabling clients to make informed choices about health care. Often there are trade-offs between known benefits and harms on the one hand and client preferences on the other (such as in choosing a method of contraception or deciding to start hormone replacement therapy).[12,13] Actively providing clients with objective information can lead to a number of benefits, such as improved knowledge

and satisfaction or lower rates of surgical intervention, without adversely affecting clinical outcomes.[14] Another key theme in reproductive health care concerns how best to improve access for different client groups. The attitudes and concerns of young women, especially those from disadvantaged backgrounds, may make them less able or willing to access emergency contraception.[15]

Professionals work within (and are influenced by) their organisational culture, a shared set of tacit assumptions that determines how they feel and think about things and also how they behave.[16] The findings of the inquiry into paediatric cardiology deaths at Bristol Royal Infirmary dramatically illustrate how organisational cultures can even undermine the interests of patients.[17] Similarly, adverse or conflicting cultural values can undermine, say, good interdisciplinary teamwork.[18] Changing organisational cultures requires leadership and alterations in how members of an organisation perceive themselves.[19]

Clinical governance
The advent of clinical governance in the NHS represented an attempt to change organisational culture by bringing together a range of quality assurance methods to improve health care. Clinical governance has been described as an initiative to ensure that 'good practice is rapidly disseminated and systems are in place to ensure continuous improvements in clinical care'.[20] Such an approach requires both the rapid identification of effective health care interventions; and the effective dissemination and implementation of effective interventions into routine clinical practice.

Identifying best clinical practice
Over 20 000 medical journals are published each year containing research papers of variable quality and relevance. Set against an average physician reading time of less than 3 hours per week it is clearly impossible to keep up-to-date by reading journals.[21] Several journals do provide summaries of pre-appraised research to help reduce search and reading times (e.g. Evidence-based Obstetrics and Gynaecology).

Probably 'the most efficient method of deciding on the best patient care ... begins with a search for a valid overview or practice guideline'.[22] The Cochrane Library, accessed via the National Electronic Library for Health (www.nelh.nhs.uk/), represents the most comprehensive starting place to search for clinical trials and high-quality systematic reviews.[23]

Clinical guidelines ('systematically developed statements to assist decisions about appropriate health care for specific clinical circumstances')[24] are increasingly being used to guide both clinical practice and

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Box 1: Examples of questions to be considered in appraising a clinical guideline[28]

Rigour of development process
- Did the guideline development group contain representatives of all required key disciplines?
- Is there a description of the methods used to interpret and assess the strength of evidence?
- Is there an explicit link between the major recommendations and the level of supporting evidence?

Context and content
- Is there a satisfactory description of the patients to which the guidelines are meant to apply?
- Is there an adequate description of the potential health benefits or harms that may occur as a result of the recommended management?

Application of guidelines
- Does the guideline define measurable outcomes that can be monitored?

Box 2: Some electronic guideline resources

- *National Guidelines Clearing House* - US Agency for Healthcare Research and Quality – includes index of clinical practice guidelines, structured abstracts of guidelines and comparisons of guidelines for the same clinical topic (www.guidelines.gov)
- *National Electronic Library for Health Guidelines Finder* (www.nelh.nhs.uk/guidelinesfinder/)
- *Scottish Intercollegiate Guidelines Network (SIGN)* – access to full text of SIGN guidelines (www.show.scot.nhs.uk/sign/index.html)
- *New Zealand Guidelines Group* – full text versions of some guidelines (www.nzgg.org.nz/library.cfm)

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health care policy.[25] Provided that they are based upon solid evidence such guidelines can improve clinical practice, especially if accompanied by supporting activities to implement them.[26]

A health care guideline when followed should be valid, in other words 'capable of producing tangible benefits for patients'.[27] Clinical guidelines therefore need to be developed using a rigorous methodology, including a comprehensive search to identify relevant research with the explicit linking of the guidelines recommendations to the evidence. Checklists are available to help appraise guidelines. Box 1 illustrates some of the issues that need to be considered when appraising a guideline.[28] Yet finding high-quality guidelines can be problematic. An analysis of 431 guidelines produced by specialty societies over the period 1988–1998 demonstrated that the majority failed to meet basic criteria for good quality, including explicit grading of evidence.[29] Fortunately several Internet sites catalogue clinical guidelines and are rapidly becoming the best source to obtain full text versions of guidelines (Box 2).

Evidence-based implementation
A range of strategies can be employed to change professional behaviour and promote evidence-based health care (Box 3). Strategies may encompass professional interventions (e.g. continuing medical education, audit and feedback), financial interventions, organisational interventions (e.g. expanded role of nurses) or regulatory interventions (e.g. professional revalidation). Just as there is a growing expectation that clinical practice should be evidence-based, approaches to changing clinical practice should also be evidence-based.[30]

Box 3: Examples of interventions to promote professional behavioural change

- *Educational outreach visits* – trained person meets with physicians in their practice settings to provide information, which may include feedback on performance
- *Reminders (manual or computerised)* – prompt performance of a patient-specific clinical action
- *Interactive educational meetings* – participation of health care providers in workshops that include discussion or practice
- *Audit and feedback* – any summary of clinical performance
- *Local opinion leaders* – use of 'educationally influential' individuals
- *Local consensus process* – inclusion of physicians in discussions to agree the approach to managing a clinical problem that they have selected as important
- *Patient-mediated interventions* – specific information sought from or given to patients
- *Educational materials* – distribution of recommendations for clinical care (such as clinical practice guidelines, audio-visual materials, electronic publications)
- *Didactic educational meetings* – lectures with minimal participant interaction
- *Multifaceted interventions* – a combination of two or more interventions

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Box 4: Principles of academic detailing

- Assessment of knowledge and motivation for current prescribing
- Focus on specific physicians and opinion leaders
- Defining clear educational and behavioural objectives
- Credibility through a respected organisational identity
- Referencing authoritative/unbiased sources of information
- Presenting both sides of controversial issues
- Active physician participation in educational sessions
- Concise graphic educational materials
- Highlighting and repeating essential messages
- Positive reinforcement at follow-up visits

Educational approaches are commonly used to promote change in clinical practice. Educational outreach appears to be a promising strategy. For example, educational packages have been used to alter the management of menorrhagia in primary care.[31] Tranexamic acid, an effective first-line treatment for menorrhagia, is generally underused in general practice. The educational intervention package was developed along the principles of 'academic detailing' and evaluated in a clinical trial (see Box 4). The package increased appropriate prescribing of tranexamic acid and also reduced referrals. There are noticeable similarities to approaches used by pharmaceutical industry representatives – perhaps with the exception of referencing unbiased sources of information.[32]

Findings from systematic reviews

As with clinical care, systematic reviews of rigorous studies have greatly contributed to our knowledge about what works in changing professional behaviour. An overview of systematic reviews has at least identified those strategies that appear to be more (or less) effective.[33] The simple postal distribution of guidelines and didactic educational sessions seem to be largely ineffective. Local consensus conferences, the use of opinion leaders, and audit and feedback are of variable effectiveness. Strategies such as interactive educational workshops, reminder systems, educational outreach and multifaceted interventions seem to be the most effective approaches. Whilst the dissemination of printed educational materials (such as guidelines) alone only produces small effects, they at least have the advantage of being a low-cost approach. Prompts and reminders have consistently emerged as the most effective interventions.

The limits of the evidence base on changing practice

Unfortunately evidence for effectiveness of the interventions mentioned above has not always withstood attempts at implementation in the 'real world' of day-to-day health care. There appear to be several reasons for this. First, many studies are of limited quality and may be prone to overestimating the effects of intervention. Second, context is likely to be very important. Most of the evidence supporting 'educational outreach' comes from prescribing studies in the USA, which may not translate to other cultural circumstances.[33] Third, whilst interventions such as audit and feedback seem to have variable effects, their impact on clinical practice probably relates to the clinical topic selected, the intensity of feedback and the professional groups involved. Finally, the costs of some interventions – such as the time and expense of educational outreach – may outweigh any potential benefits or anticipated cost savings.[34]

Much has been written about 'change management' and organisational approaches to improving healthcare.[35] For example, continuous quality improvement (CQI, also known as total quality management) was widely advocated as an approach to improve the delivery of quality health care through a focus on 'systems'. CQI has three key elements: identification of 'patient' needs; active participation of all team members; and the collection and analysis of data to identify problems and monitor improvements. CQI is a 'cyclical' rather than a 'one-off' process. However, there is limited evidence from rigorous studies to demonstrate that CQI can improve health care.[36]

Tailored approaches to changing practice

Professionals need a range of proven interventions that can support the implementation of evidence-based practice. Identifying interventions to promote the implementation of evidence-based practice is rather like shopping for clothes; no one style or size suits all shapes and sizes.[37] Many interventions are effective under some circumstances, but none are effective under all circumstances. And just as it is difficult to keep up with changing fashions, it is similarly frustrating tracking a shifting evidence base. Nevertheless, it is possible to choose a potentially successful strategy in the light of knowledge of the effectiveness of interventions to implement evidence-based practice. Identifying the most important and amenable barriers to change represents a key step in the selection of interventions. Table 1 illustrates the rationales underpinning some approaches to changing professional behaviour.[30] However, there is currently little empirical (research-based) evidence to inform the selection of interventions given specific barriers and circumstances.

Conclusions

Guidelines and systematic reviews provide the best source of evidence of the effectiveness of health care interventions. However, active dissemination and implementation strategies are usually necessary to ensure changes in practice. There are a variety of evidence-based implementation strategies, each of which can be effective under certain circumstances. The approach adopted needs to be based upon known barriers to change, available resources, and the likely effectiveness of the various interventions available. Changing professional practice is deceptively complex and always takes much longer to achieve than expected.

Table 1 *Examples of rationales for choosing interventions to change professional behaviour*

Barrier	Intervention	Rationale
Lack of awareness of research findings	Dissemination of educational materials	Raising awareness
Lack of awareness of need for change	Audit and feedback	Demonstrates need for change; reinforces good practice; influence of peer pressure
Cultural barriers to change	Educational outreach; local opinion leaders	Influence key people in the health care network
Inability to process all information during consultations	Prompts and reminders	Reduce errors of omission; prompts desired professional behaviour

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