Using evidence to demonstrate the value of nursing

This article explores the position of nursing in relation to the evidence-based medicine (EBM) and clinical effectiveness (CE) initiatives. It argues that both activities are based on at least three implicit assumptions. By exploring these assumptions nurses can become more involved in evidence-based practice and clinical effectiveness activities.

The terms evidence-based medicine (EBM) and clinical effectiveness (CE) are often used in conjunction, which can lead to confusion. According to West (1996), experts seem to define the former as a problem solving tool whereas more popular authors use it to mean clinical effectiveness. For example, Sackett et al (1996) defined EBM as the: 'Conscientious, explicit and judicious use of current best evidence about the care of individual patients.'

Appleby et al (1995) defined EBM as: 'A shift in the culture of healthcare provision away from basing decisions on opinion, past practice and precedent toward making more use of science, research and evidence to guide clinical decision making...[EBM] requires the evaluation of the effectiveness of medical interventions, dissemination of results...and the application of those findings into practice.'

Appleby et al's definition is much closer to the position adopted by the NHS Executive (1996) where CE is described as: 'The extent to which specific clinical interventions when deployed in the field for a particular patient or population do what they are intended to do, that is, maintain and improve health and secure the greatest possible health gain from the available resources.'

Maynard (1997) has questioned the link between medical effectiveness and what he called the population-based ethic of efficiency, challenging the proponents of EBM to clarify how individual clinical judgements can lead to broader population benefits (as implied by the CE definition). Mixed up in this is the question of whether and how other professional groups engage in the debate.

EBM/CE are undoubtedly medically-led initiatives and whether the opinion leaders see EBM and CE as involving all members of the healthcare team should be made explicit. For example, it is not sufficient to change the name to evidence-based practice or evidence-based health care without considering the impact on the conceptual framework upon which it has been built.

It is important to tackle these issues early on and embrace what is seen to be the principles of collaboration and partnership enshrined both in EBM and CE. But there needs to be greater recognition of some of the barriers raised to other professional groups in taking on the current presentation of EBM and CE. The challenges are linked to three key assumptions:

- Clinicians directly involved in delivering patient care influence, either positively or negatively, patient outcomes
- Clinicians assume full responsibility for their practice
- Clinicians draw on, and contribute to, a body of knowledge elucidating best evidence and optimum effectiveness.

The relationship between these assumptions is cyclical in nature, that is, in order to test the first assumption there must already exist methods and procedures to produce professional knowledge and evaluate its effectiveness.

THE ROLE OF KNOWLEDGE

Discriminating between knowledge based on opinion and practice, as opposed to scientific evidence, is an important stage in the development of a professional group. The ability to generate knowledge in the first place is related to the authority and control over one's work environment, where it is much more likely for systematic observation of practice to be undertaken when the conditions needed to control the intervention and the subjects are within reach of the individual clinician.

These two conditions automatically lead to the assumption that practice based on a body of scientific knowledge, within a context where authority and control are acknowledged, will lead to improvements in patient care.

Within the evidence-based movement there seems to have been a 'clearing out' of outdated knowledge and personal views to be replaced with a new way of making judgements about clinical practice. If EBM/CE are dependent upon professional groups having a critical mass of research and clinical knowledge to draw upon before embarking on the exercise, it may prove to be too limiting and esoteric.

However, if the higher order objective of EBM is to promote more clinically effective care, then creating
a culture where all clinicians from every discipline have to muster the best evidence to justify their practice, will begin to shift professional boundaries and knowledge bases. And, while the official line of EBM is one of inclusion, particularly within the Cochrane Collaboration where nurses and other professionals are actively encouraged to join review groups, the reality is more complex. To understand the nature of the tensions experienced by non-medical groups, it is important to explore the effect of the three implicit assumptions on their role in EBM/CE.

ASSUMPTION 1: Clinicians directly involved in delivering patient care influence, either positively or negatively, patient outcomes. The question here is whether nursing makes a difference to patient care. In order to qualify as a player in EBM/CE there must be sufficient acceptance, either based on clinical experience or at best, research evidence, to indicate that the intervention, whether it is a treatment initiated by a doctor, nurse, or physiotherapist, makes a difference to patient outcomes.

Making a difference in many ways is dependent upon the accumulation of knowledge and the ability to control and be responsible for the context in which one is working. Thus, in young professional groups where the body of knowledge is still basic and where control over clinical care has to be mediated through other more powerful groups, it is all the more difficult to begin the painstaking work of checking out which interventions are effective and which should be discontinued.

One has to acknowledge the distinction between evaluating an intervention against scientific evidence and encouraging clinicians to take a more critical approach to their work, evaluating expected patient outcomes against implicit standards based on clinical experience and judgement. Where best evidence does not exist, one should be encouraging a much more systematic approach to the observation and description of interventions. Indeed, science is based on this very empiricism which leads into a more deductive experimental style of analysis. But what happens with young disciplines that are still at the descriptive stage?

What has happened in nursing is that researchers have adopted an eclectic approach to their research, investing both in descriptive methodologies and using experimental designs where appropriate and possible (Kitson et al 1996). Of the evidence that currently does exist on the effectiveness of nursing interventions there are three dimensions of nurse-patient interaction that could fulfil the conditions of Assumption 1.

Individual nursing interventions One of the most thorough analyses of the direct impact of nurses and midwives comes from the Cochrane review on midwifery practice (Chalmers et al 1989). They found at least one third of midwifery practices to be detrimental to the care of pregnant women.

Mumford et al (1982) reviewed 34 controlled trials and found that surgical and coronary patients who were provided with information or emotional support to help master medical crises do better than patients receiving ordinary care. Sindhu (1996) undertook a meta-analysis of randomised, controlled trials (RCTs) looking at the effectiveness of non-pharmacological interventions in the management of pain and found 49 relevant primary studies. Evidence from the primary studies found that non-pharmacological interventions were effective, but when pooled in meta-analysis, the studies were too heterogeneous to detect differences between treatment and control groups.

Thomas and Bond (1995) reviewed three UK nursing journals between 1989-1993 to identify the number, focus and quality of studies evaluating nursing care. They found a total of 44 direct intervention studies looking at the effect of giving information to patients (8), patient teaching (29), other nursing interventions including extra ward activities in elderly care, guided orientation programmes for incontinent patients and three studies undertaking product evaluation.

These primary studies and subsequent reviews do provide evidence to suggest that the individual intervention of nurses has a direct effect on individual patient outcomes.

Development of new nursing roles In addition to individual interventions, research has been carried out looking at the effect of new nursing roles on patient outcomes. The most frequently evaluated nursing role is that of nurse practitioners. Having developed in the US and Canada as a result of shortages of primary care physicians, the role has been placed under considerable scrutiny.

In 1986, the US Congress Office of Technology (1986) declared that nurse practitioner care equates in quality to that of physicians. This reinforced an earlier report from the Graduate Medical Education National Advisory Committee (1980), which declared that there was overwhelming evidence that care provided by nurse practitioners and nurse midwives was safe, less costly, acceptable to most consumers, preferred by some and of higher quality in some areas such as patient education and counselling.

Brown and Grimes' meta-analysis (1993) found that nurse practitioners provided more health promotion than doctors. Nurse practitioners scored more highly on quality of care measures, had equal drug prescription rates and ordered more but cheaper laboratory tests. They had a higher rate for resolution of pathological conditions, higher scores on functional status of patients, better scores on patient satisfaction and compliance. Despite spending more time with patients, their unit cost per visit was lower than doctors.

More recently, Richardson and Maynard (1995) cast doubt on the quality of many of these studies, particularly challenging whether US and Canadian research results can be transferred to the UK setting. Of the few studies undertaken in the UK (all descriptive),
Touche Ross (1994) identified similar trends - patients were highly satisfied with care provided, valued the different approach to consultation and found that nurses were able to practise safely and effectively.

Other nursing roles to be evaluated have included those of community psychiatric nurses and the effectiveness of psychosocial intervention for families of people with schizophrenia (Brooker and Butterworth 1991), the work of stoma nurse specialists and psychological adjustment of colostomy patients (Wade 1990) and community liaison roles of respiratory nurse specialists (Heslop and Bagnall 1988), dermatology liaison nurses (Erssey et al 1995) and paediatric home care teams (While 1991).

Taking account of certain limitations of the study designs, there is evidence to suggest that nurses working in a particular role with clear clinical responsibility for patients do improve patient outcomes. The organisation of nursing Aiken (1990) argued that every multihospital study on mortality in the US and Canada has demonstrated substantial variation across hospitals and, more importantly, that nursing is among the important factors that explain variation in death between hospitals.

Using this accumulated evidence in her most recent study, Aiken et al (1994) hypothesised that it was not just the number and skill mix of nurses in hospitals that lead to better mortality rates but that hospitals which facilitated professional autonomy, control over practice and fostered better relationships between doctors and nurses would have significantly lower mortality rates.

Using hospitals known to attract nurses because they explicitly promoted more professional autonomy and control over the practice environment - magnet hospitals - Aiken et al (1994) compared mortality rates in these hospitals (39) with 195 matched control hospitals. They found that out of 17 organisational dimensions, nursing organisation, particularly around autonomy and practice control dimensions, accounted for 7.7 per cent of improvements in mortality rates in these hospitals. The researchers were confident in claiming that the superior mortality in these hospitals could not be explained by patient characteristics or any other features related to nursing.

No equivalent studies could be undertaken at the moment in the UK as very few hospitals have been able to implement a nursing organisational structure that promotes professional autonomy, with greater control over the practice environment and better relationships with doctors (Buchan 1994). Also, studies on the organisation of nursing and patient outcomes (Bagust et al 1992, Binnie and Titchen, in press, Carr-Hill et al 1992, Griffiths and Evans 1995, Pearson et al 1992), have been descriptive in nature with less ability to control the nursing intervention or measure its effect on patient outcomes.

Despite these limitations, the apparent trends are that better skill mix, that is, more qualified nurses, improve the quality of care (Griffiths and Evans 1995, Pearson et al 1992); and that nursing units where nurses have more autonomy and control over their practice lead to better patient outcomes (Bagust et al 1992, Binnie and Titchen, in press, Carr-Hill et al 1992). The evidence put forward by Aiken et al (1994) is strongly supported by more descriptive studies undertaken in the UK. Again, the message seems to be clear; nurses as individuals, in specialist roles and as a group, have a measurable effect on the clinical outcomes of patients.

In considering Assumption 1, it would be acceptable to conclude that nursing does directly influence the outcomes of patients, the nature of the effect as we have seen ranges from significantly influencing hospital mortality rates to improving quality of life and coping strategies of individual patients and their families.

ASSUMPTION 2: Clinicians assume full responsibility for their practice.

The question we need to ask here is whether nurses are in control of their clinical practice. The focus of EBM is very much upon the decision making ability of the individual clinician encouraging him or her to replace unfounded opinion and practices with research-based evidence.

Sackett et al (1996) described the practice of EBM as integrating individual clinical expertise with best available external evidence from systematic research. According to them, clinical expertise derives from practising medicine in a more effective way, integrating the ability to make accurate diagnoses followed by thoughtful and compassionate use of individual patient situations to make decisions about treatment.

Implicit in the description is the ability of the doctor to control the encounter with the patient so that following the most appropriate decision, the best care is given. However, if the description covers the whole package of care required by the patient, how other members of the healthcare team make their decisions must be acknowledged, ensuring they are exercising the same rigour.

Aiken (1981) described the practice of nursing as integrating constant surveillance with good clinical judgement, the co-ordination of services provided by others and an ability to distinguish the beginnings of life threatening crises from routine discomfort. This description is consistent with Benner's broad categorisation of nursing (1984) into actions related to nurturing or caring for patients, education or information giving and initiating, co-ordinating and monitoring a range of technical interventions. Benner also highlighted how nurses develop clinical expertise in these areas.

While a system for nursing practice can be described, Aiken (1981) argued that frequently the
context within which nursing is practised mitigates against individual nurses being able to exercise authority and take responsibility for their own clinical decisions. Reasons for this include:

- The transfer of technology from doctors to nurses resulting in confusion over changes in nurses’ sphere of authority in the care of patients
- Changes in doctors’ working patterns and their impact on the authority of the nurse to act in the absence of the doctor
- The relative lack of acknowledgement of the nurse’s new role in the level of clinical decision making required by very sick patients
- The increased specialisation of doctors and the resultant need for nurses to synthesise continually many orders from a range of doctors
- The limited authority of the nurse to deploy support services in order to fulfil responsibilities.

The work on magnet hospitals (Aiken et al 1994) illustrated how creating more professional autonomy for nurses, giving them more responsibility for clinical practice and working on improving relationships between doctor and nurse, improved patient mortality rates. Such factors should therefore be built into systems that espouse effective patient care.

Evidence-based nursing, like EBM, would encourage the integration of individual clinical expertise with best available evidence from systematic research. The recognition by other groups of how such a position would change the autonomy and responsibility of individual nurses for patient care is not clearly thought through. Recent attempts by nursing to make individual nurses more accountable for their practice (UKCC 1992) have been limited by the lack of research evidence put forward to inform nursing decisions. Indeed, the move to claim autonomy for nursing practice without giving sufficient attention to the scientific basis of that practice illustrates the interdependence of the two principles.

Other challenges facing the move toward evidence-based nursing are the dominance of disease categories to diagnose treatments and the over representation of research literature on the efficacy of drug interventions rather than any other treatment. Green (1996) rightly argued that the need for a clear single diagnosis based on an epidemiological classification to start the process of searching for clinical evidence is unrealistic. Patients rarely have discrete, one dimensional problems, and studies which look at one clinical description per case reduce the complexity of individual wants and needs.

Similarly, nursing problems may be more appropriately defined according to patients’ functional incapacity rather than strictly by disease category. For example, the treatment of anxiety, incontinence, or patient education regimes requires both a diagnosis and insight into the effects of such conditions on patients regardless of underlying aetiology.

The apparent over reliance of EBM on pharmacological interventions also inadvertently reduces the ability of nurses and other professional groups to become involved. Recent studies by Ellis et al (1995) and Gill et al (1996) in general medicine and general practice respectively, identified up to 80 per cent of the medical practice as being research based. On closer scrutiny, in Ellis et al’s study, 48 out of 58 RCTs of evidence-based practice related to single drug interventions. Gill et al (1996) reported a similar pattern with one non-pharmacological intervention out of 31 RCTs. One could conclude that evidence-based medicine is more dependent upon drug trials than any other investigation and, indeed, that the chosen methodology of RCTs and meta-analysis disqualifies important studies with major relevance to patient welfare.

While it is naïve to argue this point strongly, it is important to explore the sort of interventions cited by Ellis et al and Gill et al as having insubstantial evidence to support the clinical decision. What we find, particularly in Ellis et al’s study, is a combination of complex interventions described as supportive care for patient groups as diverse as terminally ill patients and endstage overdoses.

From a nursing perspective, these cases would require expert nursing care and there may indeed exist evidence, perhaps not RCT-type evidence, but sufficiently convincing clinical evidence that would justify certain nursing interventions. However, neither study was investigating the full complement of evidence being used by the team, only single diagnoses and single disciplines.

If EBM does link with CE, it must address the issue just raised. There may be a lot of false claims of clinically effective care if the conditions for including the whole team and the whole patient experience are not acknowledged. In order to do this, doctors and nurses in particular need to work more collaboratively, sharing each others’ knowledge and recognising the complementary roles they play in making patients better.

ASSUMPTION 3: Drawing on and contributing to a body of knowledge elucidating best evidence and optimum effectiveness.

The question to be asked here is whether nursing has a scientific base for its practice. The final implicit assumption to be considered is that for a professional group to be involved in evidence-based practice it must possess a sufficiently sizeable and robust scientific base from which to evaluate the effectiveness of individual clinical interventions. Size and robustness are functions of the age of the professional group and the level of investment in primary research.

For relatively young professional groups, therefore, of which nursing would be one, the amount and quality of research evidence to draw on may be quite limited compared with older, more established professional groups.
Indeed the systematic description of nursing practice only began in the UK in the late 1950s. Pioneer researchers including Doreen Norton and Jean McFarlane were the first nurses to explore clinical nursing practice in a systematic way (McFarlane 1970, Norton et al 1962). University departments of nursing were established at this time in Manchester and Edinburgh, which announced the beginning of training new generations of nurses in research methods. In 1972, the Briggs Committee reporting on nurse education recommended that the profession should be research based and that a modest 5 per cent of the nursing workforce should be trained at graduate level.

Given the stage of development, it is not surprising that nursing research has struggled to sustain its position in generating new knowledge. With so much basic descriptive and observational work to do it is also not surprising that RCTs were neither the most relevant nor appropriate design choice.

However, despite the relative youth of nursing research, Cullum (in press) has uncovered a sizeable number of RCTs in nursing. She is co-ordinating the nursing field with the Cochrane Collaboration and is working with colleagues in this country and internationally to identify relevant nursing research. Cullum will also be evaluating the quality of the RCTs to determine their utility in meta-analyses. Recent reviews by Sindhu (1996) and Thomas and Bond (1995), however, point to recurrent problems found in nursing research, namely small sample sizes and weak methodologies.

While these problems are not unique to nursing studies, they do seriously limit the conclusions to be drawn from research. One of the obvious solutions is to ensure that future nursing research is adequately supported in terms of resources to recruit necessary numbers onto studies and in methodological support relating to the proper supervision and training of new researchers.

If current nursing research is limited in what it can provide as evidence for clinically effective nursing interventions, it does not mean that it should cease to be involved in evaluating its practice. On the contrary, one could argue that the less the evidence the more the investment in primary research undertaken in a rigorous way.

This is a slightly different point from the EBM position which is about applying research based knowledge that already exists. However, within the wider CE agenda more inductive approaches (Kitson et al 1996) to knowledge generation and testing must be embraced. Because nursing research is at a relatively early stage in its development, it must of necessity embrace a wide methodological base; add to this lack of control over one’s practice environment and a culture which has been trained to interpret patient events and interactions in medical terms and one has a sense of the challenges facing nursing knowledge generation. These are challenges that are neither conceptual nor philosophical – they are about power and control.

Evidence does exist which confirms the third assumption: nursing does have a scientific base for its practice although it is recognised to be only at a beginning stage. What is needed is recognition of the important contribution of nursing knowledge to patient care and to invest in appropriate research and development.

DISCUSSION
Does the EBM movement promote or inhibit the involvement of the nursing profession? The analysis has identified three implicit assumptions around EBM. Nursing does meet these criteria but with a number of qualifications which are key to its successful contribution. These require careful consideration by the leaders of EBM/CE and include:

- Exploring ways in which classification categories, other than disease groups, can be used to establish diagnosis
- Acknowledging the complementary relationship between medical diagnosis and interventions and nursing diagnoses and interventions
- Responding to the challenge of how non-pharmacological interventions can be evaluated rigorously
- Considering how more holistic diagnosis and treatment regimens can be evaluated
- Defining the similarities between EBM, evidence-based practice and CE
- Considering how to involve other professional groups with less-developed research bases
- Acknowledging the relationship between clinical decision making and control over the practice environment
- Acknowledging the interdependence between investment in primary research and the existence of good evidence.

For nursing to sign up to an evidence-based clinical effectiveness agenda is a bold step. There are many who still perceive nurses as doctors’ assistants (Lawson 1996, Lear 1997) and would therefore find it incomprehensible that nursing would claim to have a body of knowledge or have any effect on patient outcomes.

Unfortunately for nurses, many people holding these views are in influential policy and professional roles. By trying to counter such outmoded views, nursing may embrace the evidence-based movement without fully understanding the rules. And as written at the moment, the rules are about medical diagnosis, single clinical interventions, RCTs and meta-analyses. It is acknowledged that there is a limit to nursing evidence conforming to these criteria. What must not happen is that nurses are then excluded from the movement because their research is too poor or insufficient in rigour or size.
Resources invested in the government’s CE agenda and the impact it has had already in health policy (Cullum in press) signifies its importance as a new way of thinking about healthcare delivery. There must be ways of ensuring that a uni-dimensional view of clinical effectiveness does not find itself becoming the norm. This would go against the rhetoric of a patient-led NHS and particularly one which allegedly valued collaboration and teamwork, seeing these as cornerstones of the health delivery system.

Equally, a clearer distinction needs to be made between the principles of EBM and CE. If CE embraces the broader objective of encouraging all staff to become more questioning of their practice in order to improve patient outcomes, then it has to accommodate a range of methodological approaches to achieving this. EBM is highly specialised and in so far as it goes, represents a critical approach to problem solving which is laudable. However, it only presents a partial picture to effective patient care so long as it remains undisciplinary. It is a necessary but not sufficient approach to CE.

The challenges facing nursing to become involved in the evidence-based movement have been presented: for nurses to become acknowledged partners will require more than a shift in title from EBM to evidence-based practice. By taking an evidence-based approach to nursing, routine and unnecessary practices can be challenged, new roles evaluated and organisational systems tested with concomitant development in understanding what makes nursing systems work well. The complementarity between medicine and nursing can also be celebrated in the pursuit of the scientific bases of either discipline.

What the EBM and CE movements have done is to help nursing demonstrate its contribution to patient care. This will continue if EBM and CE can acknowledge the characteristics of nursing which call for a broader methodological base upon which to evaluate evidence, wider definitions for diagnosis and treatment and more investment in non-pharmacological interventions. Given these conditions, evidence-based nursing is certainly more fact than fiction.