

Barriers to the implementation of best practice in wound care

Despite the considerable progress that has been made over recent years, wound healing remains a challenge to many clinicians regardless of professional discipline or experience. This paper aims to evaluate the literature concerned with the implementation of evidence-based wound management. It shows that wound care research is badly designed, resulting in a lack of good quality research findings to underpin clinical practice. Many barriers exist preventing effective implementation of evidence. These need to be removed to improve the utilisation of evidence-based wound care.

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KEY WORDS

Wound healing
Evidence-based practice
Implementation
Barriers

The overall aim of wound management is to promote wound healing. Both patients and health professionals, for different reasons, want wound closure to occur as quickly as possible. In the majority of acute wounds this outcome is achieved but, in chronic wounds, complete closure may be unrealistic for a variety of reasons, e.g. arterial insufficiency, systemic disease, and the effects of ageing. In chronic wounds, alternative outcomes, such as reduction of exudate level and wound pain, may be more appropriate.

There are many factors that delay healing including: clinical; psychosocial; organisational; and educational (Figure 1). Practitioners may focus on clinical

factors associated with delayed wound closure but unless the wider barriers to healing are addressed, the implementation of best wound practice will not occur.

This review aims to examine educational barriers to implementing best practice for wound healing. It considers the difficulties encountered by health professionals when attempting to introduce evidence-based practice and makes suggestions on how to improve this in the future.

Electronic databases, including the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, nursing and medical online journals, the British Nursing Index (BNI), The Cochrane Library, internet sources, and Department of Health (DoH) databases were searched along with hand searches of journals from 1980 to February 2005. Key words such as wound healing/management, tissue viability, evidence-based practice, and barriers to research utilisation/implementation were used. Criteria for exclusion of papers included: non-English papers, duplication within other sources or references to unpublished work.

Advances in wound management

There is no denying that significant advances in wound management have occurred during the past 30 years. The specialty has acquired

new knowledge of wound aetiology, epidemiology and pathology. Today, there is a better understanding of local factors that delay wound healing such as the need to control bacterial balance and exudate production at the wound surface (Schultz et al, 2003). The role of antiseptics is currently being re-evaluated in the light of new knowledge and a number of silver based-preparations are being shown to safely decrease the bacterial burden on chronic wounds (Karlsmark et al, 2003; Jørgensen et al, 2005). Innovative technologies have stimulated development of new treatments, increasing availability and choice, which in turn has stimulated the growth of inter-professional, specialist wound management services. There is now a greater awareness of psychosocial issues affecting an individual's quality of life, together with a better understanding of the patient's, health professional's and lay carer's perspective.

Why is the implementation of effective wound care so variable?

There are many reasons why implementation of effective wound care practice is so variable. Historically, nursing knowledge has been associated with practical know-how which was traditionally seen as having greater importance than theory. This created a workforce with highly developed practical skills who were largely

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Figure 1. Barriers to healing.

unaware of the theoretical basis of their competence (Benner and Wrubel, 1981). Although theory and practice are inextricably linked they are often seen as separate which has significant consequences for the dissemination and implementation of research findings.

It has long been appreciated that practice-based knowledge is a major influence on clinical decision-making in wound management (Lucker and Kenrick, 1995; Boxter and Maynard, 1999). Personal experience and the opinion of colleagues continues to be a dominant influence in wound care with many practitioners relying on a small range of treatment approaches with which they have received good results in the past. Traditional knowledge and practice successfully passes down through generations of practitioners,

but at worst this can perpetuate poor practice and myths. Although aware of a growing evidence base in tissue viability, many clinicians consider it to be irrelevant due to a lack of confidence and time (Guyatt et al, 2000). However, when new information is perceived to solve practical problems, such as the use of dressings containing silver to treat infected wounds, the uptake of evidence and subsequent changes in practice can be rapid.

In addition, the implementation of evidence-based wound management is gradual and inconsistent because it is often based on expert opinion rather than on research findings (Jeffcoate and Harding, 2003). The situation is unlikely to improve as patients and their wounds possess unique physical and biological characteristics that cannot

easily be controlled or standardised in research protocols. In a speciality that has difficulty defining 'accepted clinical practice' how unrealistic is it to strive for research perfection when there is no agreement regarding basic clinical procedures such as wound assessment?

In recent years, clinicians have been overwhelmed by too much information rather than too little, and because many do not have the critical appraisal skills or confidence to differentiate between good and poor quality research evidence they do not bother to do so. The wound management literature reveals a confusing array of tools, models, evidence-based protocols, guidelines and algorithms to improve clinical decision-making. It covers topics as diverse as dressing selection, pressure

ulcer classification and management of infected wounds (Cutting and Harding, 1994; Knight, 1996; Verdu, 2003). In addition, the majority of tools are not empirically based and have not been rigorously tested or validated.

This problem is further compounded by a lack of consensus in the literature. Key terms such as 'pressure ulcer', 'wound infection' and 'healing' have ambiguous definitions while new terms frequently evolve, e.g. wound bed preparation and critical colonisation (Falanga, 2000; Bowler, 2003). Expert opinion varies greatly in different countries and between discrete professional groups, resulting in conflicting advice and different practice recommendations. Contradictory findings from different sources present a challenge for the wound care practitioner who needs unambiguous solutions to practical problems.

Breaking down the barriers

In 2000, a DoH-sponsored review of research and development confirmed that too few clinicians are aware of research and that efforts to improve the situation had not been successful (Department of Health, 2000). It is generally agreed that multifaceted strategies are required to achieve the necessary cultural shift to improve the situation and that this will take time (McKenna et al, 2003).

Improving knowledge

Twenty years ago, it was suggested that nurses lacked critical thinking skills contributing to an under-utilisation of research in practice (Hunt, 1981). Yet almost all studies recommend the need for further research despite it becoming increasingly obvious that all health professionals have difficulty interpreting and applying research findings to practice. Clinicians from different professional disciplines — not just nurses — do not feel sufficiently competent to be able to appraise research findings because they lack the necessary understanding of information retrieval techniques, research design and data analysis (Guyatt et al, 2000). However, greater

emphasis on research-based teaching in recent years is slowly beginning to have a positive effect.

Continuing professional development helps to improve personal and professional abilities, including the skills of self-awareness, critical appraisal and confidence (*Table 1*), without which there is an inclination to rely on ritualistic practice (Hick, 1996). However, education has limited value unless it is sustained, perceived to be relevant and is applied to practice. Critical appraisal skills are complex and cannot be learned quickly in brief workshops on research appreciation. The most effective acquisition of these skills occurs during educational initiatives that concentrate on information retrieval, research design and systematic reviewing (Guyatt et al, 2000).

A recent review highlighted that wound care education does not necessarily result in improved practice, especially if participants have a negative attitude about a particular practice, such as pressure ulcer prevention (Moore, 2004). The relentless criticism of the quality of wound care evidence serves to heighten negative feelings and may create collective professional apathy that the situation cannot improve.

Educational strategies need to be specifically targeted to meet the needs of different professional groups and levels of expertise to maximise effectiveness. An example of this would be the appropriate preparation of clinical leaders such as specialist nurses so that they are equipped with the skills, knowledge and attitudes to disseminate and implement evidence-based wound care locally.

This also helps to create effective role models as health professionals are more likely to implement the good practice demonstrated by a colleague than good practice read about in a journal (Lucker and Kenrick, 1995; Boxter and Maynard, 1999). In recent years it has become common for educators to work in collaboration

Table 1
Development of critical appraisal skills

Reflection on practice
Problem solving
Information searching and retrieval
Critical thinking
Summarising evidence
Action/implementation

with clinicians, industry and wound organisations to provide more effective educational initiatives that provide an opportunity to network, while keeping abreast of current opinions and developing critical thinking skills.

Different types of evidence

One of the most important methods of implementing best practice is to improve the interpretation of evidence. Research design must be understood before findings are appraised and used in everyday practice.

Randomised controlled trials

In health care, evidence has traditionally been associated with randomised controlled trials (RCTs). This research design compares two or more treatments with a control group receiving standardised treatment and has specific inclusion and exclusion criteria. These factors help to minimise bias but often exclude the patients to which the results will be subsequently applied and are often not perceived to be relevant by clinicians (McKee et al, 1999). Well designed RCTs are still considered to be the most appropriate method of evaluating effectiveness of an intervention, e.g. effectiveness of different pressure relieving aids in preventing pressure ulcers (Vyhlidal et al, 1997).

Systematic reviews of the literature

Another useful source of evidence is the systematic review of the literature which concisely summarises research findings for clinical decision makers and which is often used to develop practice guidelines. One of the inherent problems with a systematic review is that there is often a lack of robust evidence so that practice guidelines developed using this approach are often

Table 1
Sources of evidence-based health care information (adapted from CASP)

Journals	Evidence-based nursing Evidence-based medicine Evidence-based health care
Other publications	Bandolier Effective Health Care Bulletin
Guidelines	National Electronic Library for Health (NeLH) Clinical Guidelines National Institute for Clinical Excellence (NICE)
Databases	The Cochrane Library The Cochrane Database of Systematic Reviews The Cochrane Controlled Trials Register The Database of Abstracts of Reviews of Effectiveness (DARE)
Organisations	Centre for Reviews & Dissemination www.york.ac.uk/inst/crd/crdrep.htm Critical Appraisal Skills Programme (CASP) www.phru.nhs.uk/casp/OLR.htm
Additional internet resources	Centre for Evidence-Based Medicine http://www.cebm.net/ McMaster University Evidence-Based Medicine http://hiru.hirunet.mcmaster.ca/ NMAP (Nursing, Midwifery and Allied Health Professions) http://nmap.ac.uk

Reading relevant literature

Even if clinicians have highly developed appraisal skills, most will not have the time to read everything. Selective reading of good quality sources is one of the most effective strategies to improve research dissemination and practice. Internationally the model of evidence-based practice has been adopted in a relatively short space of time and there are now formal structures available that identify, appraise and apply research findings (Table 1). Therefore it could be argued that there is no longer a necessity for individual practitioners to carry out their own appraisals of new research findings, as these resources perform this function on their behalf.

A good place to start is the Critical Appraisal Skills Programme (CASP, 2005) which since 1993 has helped to develop an evidence-based approach in health care, working with local, national and international groups. CASP aims to help individuals develop critical appraisal skills and provides learning resources in three main areas:

- ▶▶ Finding research evidence
- ▶▶ Appraising research evidence
- ▶▶ Acting on research evidence.

The critical appraisal tools provided by CASP help to identify which studies are worth reading and which are not. Use of critical appraisal frameworks soon reveal which publications are more evidence based than others.

Although the development of clinical guidelines such as the European Pressure Ulcer Advisory Panel (EPUAP) (EPUAP, 1999), pressure ulcer prevention guidelines and the National Institute for Clinical Excellence (NICE) *Full Guidance on the Use of Patient Education Models for Diabetes* (NICE, 2003), help to increase awareness, they remain ineffective as many members of the interdisciplinary team are unaware of their existence. NICE was established to examine evidence using a systematic approach and has been influential in many areas of medical care but has failed to produce any practical wound management clinical guidelines. This failure to change practice is not

a combination of formal consensus incorporating good practice points and lower grade evidence, e.g. the NICE appraisal of new treatments for diabetic foot ulcers and venous leg ulcers which were withdrawn last year.

Economic evaluation

Economic evaluations are a specific form of evaluation research which focus on making the relationship explicit between the amount of benefit achieved and the required investment related to a health care intervention. Two criteria must be met for an economic evaluation to be valid. First, there needs to be either a comparison of different quality improvement strategies or comparison of a quality improvement strategy to 'usual health care' or 'doing nothing'. Second, an explicit relationship is made between people and resources which are usually expressed in monetary units, and the consequences or actual outcomes. Relating costs to outcome calculates the relative cost-effectiveness of a quality improvement strategy which can then be expressed as a cost-effectiveness ratio.

Qualitative studies

Finally, qualitative studies are ideally suited to gain an understanding of the patient's experiences, attitudes and beliefs and are based on the subjective experiences of participants (Hopkins, 2004). Qualitative research helps to put into words the emotional impact of living with wounds, e.g. pain, social isolation, and barriers to compliance (Walshe, 1995; Krasner, 1998; Ebbeskog and Ekman, 2001). Although findings from qualitative studies cannot be generalised because they represent the unique experiences of individual participants, duplication of studies in different settings with specific client groups, such as venous leg ulcer patients, may demonstrate broad similarities and have done much to increase awareness of the patient's and lay carer's perspective in recent years.

Today, robust evidence should be drawn from a combination of RCTs, systematic reviews, economic evaluations and qualitative research; each having their own strengths and limitations in a given situation (McKenna et al, 2000).

Table 2.
Development of critical appraisal skills

Educational programmes should introduce critical appraisal skills to health professionals in a way that creates an appreciation of the value and limitations of research. More emphasis should be given to the use of recognised protocols and guidelines rather than individual studies.

Strategies are required to develop a critical number of wound management clinicians with specialist research skills.

To create a stronger, more reliable evidence base to support wound management there needs to be greater emphasis on all types of research evidence.

Development of collaborative research models for wound-related applied research is required. Local clinical, educational and research resources should be identified that are capable of providing support and can champion dissemination and implementation of best wound care practice.

limited to wound healing, as studies in other specialties demonstrate that clinical practice guidelines may modify behaviour but do not significantly change practice (Cabana et al, 1999).

Utilisation of specialists

The role of the organisation in creating a climate that fosters good practice has been known about for some time (Lucker and Kenrick, 1995). One key factor is organisational stability and harmony, yet health services are in a constant state of flux as they undergo major organisational changes. This has a detrimental effect on interdisciplinary teamwork as different alliances and roles are continually being negotiated and professional relationships may be difficult to develop as teams evolve.

For many years it has been recognised that the implementation of research findings leading to changes in practice causes resistance which can be minimised by using a respected change agent (Smith and Masterson, 1996). Yet opinion leaders such as tissue viability specialists have not been utilised as effectively as they might to facilitate change.

Wound care specialists are research literate, knowledgeable about practice, policy and organisational

issues, are widely respected, and communicate effectively across the wound management community so are in an ideal position to bridge the 'theory practice gap' and influence peers, colleagues and the organisations in which they work. It would seem more feasible to develop research specialists within different professional groups who can independently locate, appraise and utilise research evidence rather than to teach these skills to the entire workforce.

The demands of clinical practice do not leave much time for professional networking and it can be difficult to keep abreast of new ideas and developments. Tissue viability is a broad specialty which requires access to a diverse range of information. Currently there is no effective mechanism for exchanging ideas between different disciplines. One approach could be to establish an independent, international platform for wound management where clinicians, researchers, academics, industry and policy makers could share good practice and discuss relevant research and policy issues.

Conclusion

The pace of change and reorganisation of services required to keep up

with new developments in wound management presents a challenge to implementation of evidence-based practice. Wound management expertise is in short supply and cannot be relied upon, making tools such as diagnostic models, decision-making aids and clinical practice guidelines an effective way of helping less experienced practitioners make more appropriate treatment decisions. This review makes several recommendations (Table 2) without which practice will remain unchanged.

The evidence-based practice model based on all health care professionals being competent at locating, appraising and utilising research-based evidence is impractical. A more realistic approach would be to have the majority of practitioners basing wound management on expert and user-negotiated guidelines, while having some appreciation of the methods used in their construction. At the same time, groups of interdisciplinary research experts representative of relevant stakeholder groups should be developed as clinical leaders within wound management.

This combined with a managed programme of research and development would have greater potential to enhance wound management knowledge so that the specialty could concentrate limited resources on conducting less but better designed studies rather than contributing to the growing 'research mountain' of unread, and inferior quality studies.

Attempting to minimise the barriers associated with tissue repair requires ongoing collaboration between clinicians, researchers, educators and industry and is the only way to achieve faster wound healing. [WUK](#)

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Key Points

- ▶▶ Despite advances in wound management, implementation of best practice is variable.
- ▶▶ There are many clinical, organizational and educational barriers that prolong wound healing, that if not addressed, will continue to impede the implementation of best practice.
- ▶▶ Contradictory findings from different sources and a lack of critical appraisal skills makes interpretation of evidence difficult.
- ▶▶ Adoption of multifaceted strategies to improve interpretation of evidence is the most important means of improving utilisation of evidence-based wound care.

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