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Barriers to accessing evidence-based information

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Summary

This review of the literature found that perceived lack of time is the main barrier to evidence-based practice for nurses. A lack of information technology skills and access affects nurses' use of research evidence. Nurses tend to base the selection of information sources on convenience and accessibility rather than quality. They also tend to rely on colleagues as information sources and prefer to refer to them than to printed or computerised sources.

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IN PREPARATION for a survey of nurses' information needs in 2004, Royal College of Nursing (RCN) information and knowledge management staff conducted a literature review to examine barriers to accessing evidence-based information. The review covered the period January 2004 to November 2006 and used the British Nursing Index and the Library and Information Science Abstracts (LISA). Only articles in English were considered. The key findings of the review are outlined in this article.

Lack of time

Nurses identify lack of time as a major barrier to accessing and reviewing evidence-based information or, indeed, any information. In a

multi-site, mixed method case study of nurses in three primary care trusts in the north of England, Thompson *et al* (2005) point to a perceived lack of time for information-seeking and information use as a significant barrier. This study involved semi-structured interviews with 82 nurses, 270 hours of non-participant observation involving 61 (74%) of these nurses during consultations with patients, followed by 122 Q-sorts. A Q-sort is a ranking of variables, often presented as statements printed on small cards. This mix of research methods can result in rich data. In Thompson *et al's* (2005) study information-seeking or use during non-participant observation was rare and participants identified limited time as a barrier to the use of research information.

In a study of the information behaviour of on-duty critical care nurses in a community hospital in the United States (US), nurses felt that there was not enough time to read from a book or computer while actively engaged in clinical tasks (McKnight 2006). In this study participant observation and in-depth interviews were used to record, in detail, 50 hours of the information-gathering behaviour of a purposive sample of six on-duty nurses on a 20-bed critical care unit in a non-teaching community hospital. As a result of their conviction that there was insufficient time to read, the nurses were observed seeking, using and passing on only a small amount of knowledge-based information. They also tended to ask colleagues for advice, rather than searching for information, despite the fact that there was internet access in the ward and reference books were available.

The strength of such a study is that direct observation is likely to be a more accurate reflection of information-gathering behaviour than self-reporting, where there may be a tendency to overestimate skill level and the amount of time

spent on information-seeking tasks. This study describes the behaviour of one small group of nurses at one time in one setting and might not be applicable to all settings. Nevertheless, the themes identified in this study have emerged in other studies in other settings.

In a survey of 500 nurses in Wales (Upton and Upton 2005), less than half reported being able to make time in the working day to find new evidence. Time was also an issue influencing the choice of information source in a small-scale survey of clinical nurses in the US (Dee and Stanley 2005). It was identified as a major constraint in achieving evidence-based practice in a survey of clinical nurses in a large teaching hospital in England (Gerrish and Clayton 2004), and acknowledged as the greatest barrier to evidence-based practice in a large-scale US survey of nurses' attitudes to such practice (Pravikoff *et al* 2005).

Lack of access and skills

A study of the information needs of perioperative staff in the UK found that nurses had the poorest computer access and that levels of access followed professional hierarchies (Nicholas *et al* 2005). Half of the nurses at one of the hospitals in the study either had no email account or were unaware they had access. This study took place in three hospitals in an NHS trust in a rural county in the north of England. It involved individual interviews with two modern matrons, one theatre matron and three nurses, in addition to group interviews with 15 nurses, a senior clinical nurse and two modern matrons. Poor access, shortage of time and a view held by some nurses that computers are peripheral to the core job were barriers to meeting information needs. Only a minority of nurses had used the internet for work purposes.

The study has limitations, including the small number of nurses involved. The authors acknowledge two further issues. First, the sample was one of convenience, consisting of those members of the target population who happened to have 'free' time. Second, time constraints on staff meant that interviews were often disrupted by telephone calls or staff queries, meaning that the interviewees' expression of their thoughts was sometimes interrupted.

Lack of access to information technology (IT) was also an issue for community nurses in a study of primary care practitioners (McKenna *et al* 2004). This study involved sending a postal questionnaire to a random sample of 356 GPs and a stratified sample of 356 community nurses in

Northern Ireland. The overall response rate was 65% (462), which is good considering that response rates from primary care practitioners are generally poor. The majority of the community nurse respondents were district nurses. Poor computer facilities was the most significant barrier to evidence-based practice identified by the nurses. The community nurses experienced limited access to computers, particularly the internet. There was also a perceived lack of confidence among 258 respondents (nurses and GPs) in using computers.

In a study of internet use on four acute wards in a teaching hospital in the north of England, it was suggested that nurses will make use of internet technologies and integrate them into their working day if they are accessible in the workplace (Morris-Docker *et al* 2004). The aim of the study was to observe nurses' use of the internet when given unlimited 24-hour open access. An open access networked computer was provided for each ward in the study and located in a place accessible to staff during working hours. Methods used in the study included an internet surveillance software package, a questionnaire survey with the nurses ($n=97$) and in-depth interviews with a sample of nurses ($n=12$). A total of 88 nurses who participated in the study logged on and used the internet. The study took place over a period of 12 months, making it less likely that the results were affected by the novelty factor of having a ward computer. The results showed that nurses used the internet during quiet times and for short periods. The majority of internet activity occurred as brief events. Approximately 75% of the activity logged took no longer than 10 minutes, and only 3.5% of user time took 30 minutes or more. Most of the activity that took 30 minutes or more occurred at night.

The search strategies used by nurses in the study were unsophisticated and involved using search engines, such as Google™, which was preferred over library and professional databases. The diverse range of search terms used, along with the variety of websites visited, suggested that searches were opportunistic and unplanned.

In a small-scale survey of 25 clinical nurses and 25 nursing students in the US (Dee and Stanley 2005), electronic databases were popular only with those skilled in computers. A questionnaire, in-depth interviews and observation were used to compare nurses' actual database searching skills with their perceived skills as reported on the questionnaires. A total of 64% (16) of the clinical nurses did not perform database searches on even a weekly basis, with 76% (19) citing lack of time as a deterrent and 84% (21) an overall lack of computer skills. A total of 76% (19) said they needed more database training. In the interviews staff reported that they would only access databases if they were available in patient areas

and if they were not too busy to use them. Those who were less skilled in using computers preferred popular search engines and keyword searching to database searches, which demanded more skill to use. The study involved a relatively small number of participants, but this limitation is partially offset by the variety of methods used to collect the data.

A larger scale US survey had similar findings. A 93-item questionnaire was posted to a geographically stratified random sample of 3,000 registered nurses (Pravikoff *et al* 2005). A total of 1,097 nurses (37%) responded, and 760 respondents (77% of those who were employed at the time of the survey) worked in clinical settings and are the focus of the published article. Among the primary individual barriers to nurses' use of research in practice – other than lack of time, which was acknowledged to be the greatest barrier of all – were a lack of understanding of organisation or structure of electronic databases, difficulty accessing research materials, lack of computer skills, difficulty understanding research articles, lack of search skills and a lack of skills to critique or synthesise the literature. This study was cited in several of the articles considered for this literature review, despite having a low response rate with potential to bias the results.

These findings were echoed in a study of nurses in Wales, which had a good response rate (Upton and Upton 2005). The study involved two surveys by postal questionnaire to a random sample of 500 nurses at the beginning of the Welsh Clinical Effectiveness Initiative, which ran from 1995 to 2001. Overall, 751 nurses responded, giving a response rate of 75%. The focus of the study was knowledge of clinical effectiveness and evidence-based practice, and the practice of individual components of clinical effectiveness and evidence-based practice. Respondents gave themselves the poorest rating for technical skills (IT, computer literature searches and research skills) needed for evidence-based practice, whereas personal or interpersonal skills – for example, disseminating ideas about care to colleagues, and sharing ideas and information with colleagues – were rated the highest.

The literature shows a tendency for nurses to lag behind other professional groups in terms of access to computers and IT skills. The literature also points to a lack of skills to use higher level sources of evidence-based information, such as electronic databases, and an inability to appraise the evidence they find (Nicholas *et al* 2005, Pravikoff *et al* 2005).

Information needs and sources

The information needs of theatre nurses were described as 'pragmatic, practical and

procedural' by Nicholas *et al* (2005) in a study of perioperative staff. These nurses viewed nursing information as patient or care-centred and holistic, in contrast to the medical or scientific information required by doctors, and wanted it in a form suitable for imparting directly to patients. Currency of information and speed of delivery were key factors. They also found that nurses did not regard information seeking as part of the culture of the job, except with regard to training.

This accords with the study of the information behaviour of six on-duty nurses in a critical care unit in a community hospital in the US (McKnight 2006). In this study nurses sought information from colleagues, patient record systems, as well as monitoring and other computer systems but rarely from published sources. They did not seek information that was not directly applicable to current patients.

The theme of nurses drawing most frequently on experiential knowledge and work-based information to inform their practice emerges frequently in the literature, as does the general tendency to select information on the basis of accessibility and convenience rather than quality. A study of clinical nurses and nursing students in the US found that the quality of information could be compromised by the need for rapid retrieval (Dee and Stanley 2005). Here colleagues and books were consulted frequently, because they were located in patient areas and nurses felt that this was the quickest and easiest way to get answers.

Colleagues emerge repeatedly as key sources of information. In Pravikoff *et al*'s (2005) study 67% of clinical registered nurses said they always or frequently sought information from a colleague, rather than a reference text or journal article. Journal articles and research reports were seldom used as sources of information and 58% reported not using research reports at all.

In Thompson *et al*'s (2005) study of 82 primary care nurses in the north of England, it was found that although nurses reported using 67 different sources of information in clinical decision-making, during 270 hours of observation almost the only sources consulted were colleagues from the participants' professional discipline or primary care team.

In a survey of clinical nurses in a large teaching hospital in England, it was found that nurses relied most on experiential knowledge gained through their interactions with nursing colleagues, medical staff and patients to inform their practice, rather than formal knowledge gained from textbooks or journals (Gerrish and Clayton 2004). Workplace sources of knowledge, such as information from doctors, and organisational information in the form of policies and audit reports were used more frequently than research reports.

The authors identified a lack of time, resources and perceived authority to change practice as influencing the extent to which nurses used formal sources of evidence. This study involved a self-completed questionnaire. In total, 728 questionnaires were distributed, and 330 returned, a response rate of only 45%. It should also be noted that this study only examined one organisation. However, the views expressed in the questionnaire do echo the findings of other studies, that is, nurses want to obtain information quickly and easily, and tend to select the most convenient source to get it, with colleagues generally being preferred to printed or computerised sources.

Format of information preferred

The combination of lack of time and skills, and need for quick and easy access to information, has an impact on the information formats preferred by nurses. In Thompson *et al's* (2005) study of primary care nurses in the north of England, tried and tested information formats – for example, travel vaccination charts – were preferred by those who expressed a deficit in information handling and computer skills. These nurses were reluctant to use ‘new’ forms of information, such as the internet, which were viewed as being less reliable in a clinical setting than tools they were used to using. This group wanted ‘broad’, research-based information as a result of their generalist primary care roles, and they considered interpreting statistical information and technical language in research reports a barrier. Appraised articles in journals and the use of appraisal guides addressed skills deficits to some degree but were still not perceived as sufficient by this group.

A second group of nurses were more likely to find the lack of summarised and targeted information a barrier. They called for summaries of research information as solutions to the problem of a lack of time for appraisal or reflection. However, these were often perceived as lagging behind advances in clinical practice. Engaging with research information took place away from work for this group, often in relation to continuing professional development. Attempts to use sources such as the Cochrane Library in response to recognised information requirements did not always meet these nurses’ needs, as demonstrated by the following comment from a participant in the study: ‘If you’re looking for clinical evidence about a specific problem relating to the management or the treatment of a certain condition, it [the Cochrane Library] might be

somewhere that you might look. But it’s very clinical. It doesn’t give you much else other than X number of randomised controlled trials about such and such, and this is what they found. So it’s not one that I would use’ (Thompson *et al* 2005).

Appraising quality of research

People now have a larger array of information resources at their disposal via the internet, but not all of this is high quality and individuals may lack the necessary evaluative skills to make judgements about the information they find (Nicholas *et al* 2005). This raises the difficulty of evaluating the quality and authority of the information obtained from previously unused sources. Nurses in Nicholas *et al's* (2005) study – a mix of modern matrons, a theatre matron, a senior clinical nurse and other nurses – relied on their own knowledge to assess the credibility of their sources, rather than the provenance of the evidence.

A survey of 330 clinical nurses in a large teaching hospital in England (Gerrish and Clayton 2004) found that, although the greatest barriers to nurses accessing and reviewing evidence-based information related to time and the availability of information, lack of skill in judging the quality of information and identifying the implications for practice were also of concern. The authors concluded that any strategies to promote evidence-based practice should take account of the current constraints under which practitioners are working, and ensure that evidence-based information is readily available to nurses in a form in which they can easily understand the implications for their practice. The fact that nurses in the survey were more likely to obtain their knowledge from policy and procedure manuals than from research literature highlighted the importance of ensuring that protocols and care pathways are evidence-based, relevant to local contexts and readily accessible to practitioners.

This view is echoed by Simpson (2006), who argues that evidence-based nursing will only become a reality if evidence is made readily and easily available to nurses at the point of care and decision making.

Online evidence at the point of care

A large-scale Australian study evaluated the use of online evidence in the public health system in New South Wales (Gosling *et al* 2004). In this study a convenience sample representing 25% of nurses from 65 randomly selected hospitals was sought. A total of 84% of the survey quota was met and 3,128 questionnaires were completed and returned. The study was undertaken as part

of a two-year evaluation of the use of the Clinical Information Access Program (CIAP). The CIAP is a website that provides 24-hour, online access to a range of evidence sources, including clinical databases at the point of care.

Nurses reported using CIAP most frequently for filling gaps in their knowledge, and for education and research. In contrast to the low usage of databases referred to in some of the other studies, a high proportion of nurses in this study reported using bibliographic databases, such as Medical Literature Analysis and Retrieval System Online (Medline) – which 66.7% reported using regularly, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) – which 70% reported using regularly. A significant proportion of nurses used CIAP to access standard references, such as pharmaceutical databases.

It is important to note that, given that over-reporting of use can be a confounding factor in questionnaires, the results of the study were triangulated with those of related evaluation studies, and a web log analysis produced similar figures. There was a paucity of summarised evidence sources available via CIAP at the time of the survey (Gosling *et al* 2004). It was felt that these would be a more efficient way of disseminating evidence to busy clinicians than via bibliographic database searches. The study concluded that the introduction of CIAP at the point of care, with 24-hour access, had removed several of the barriers preventing nurses using evidence reported in previous studies.

Conclusion

Nurses continue to cite a lack of time as the major barrier to accessing information. The literature shows that they have difficulty finding the time to access basic information, let alone to identify implications for practice from research information. This is not a problem that is easy

to resolve, given the pressures on nursing staff in most clinical settings. Lack of IT skills and access are also issues, and again, given the funding shortages in most healthcare settings, difficult to resolve. Poor search and appraisal skills, and a lack of understanding of statistics, research and the structure of databases compound the problem. This results in a tendency to select information sources on the basis of accessibility and convenience rather than quality. It also suggests a reliance on workplace sources of knowledge, especially colleagues.

It is interesting to compare the experience of nurses with that of medical staff. In McKenna *et al's* (2004) study of primary care practitioners in Northern Ireland, GPs believed that the most significant barrier to using evidence in practice was not lack of access to computers, but the uncertainty created by conflicting research results. They did identify inability to search for evidence-based information as a major barrier, however, and only 25% (89) of them stated that most of their practice was evidence-based, compared to 42% (103) of community nurses.

In a comprehensive review of the literature on the information-seeking behaviour of doctors from 1996 to 2006, Davies (2007) found that face-to-face communication and use of hard-copy evidence still prevail among qualified medical staff in the clinical setting. This indicates that using the latest sources of evidence is problematic for medical staff too.

There is a need for nurses to have up-to-date, good quality, evidence-based information in manageable amounts, targeted to their area and preferably available at the point of care. There is also a need for nurses to improve their information-seeking and appraisal skills. RCN information and knowledge management staff are working on both these issues and are examining ways to help nurses overcome some of the barriers identified in the literature. **NS**

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