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SOURCES OF NURSING KNOWLEDGE

Nursing knowledge is drawn from a multifaceted base and includes evidence that comes from science (research and evaluation), experience and personally derived understanding. Scientific knowledge is developed through enquiry and can use the research approaches discussed throughout this book. It is, however, not the only form of evidence used by nurses in their practice. Nurses also use experience gained from practice itself and their own personal learning. The relationship between research and the generation of scientific knowledge is understood and accepted by many. In contrast, a number of writers have proposed frameworks that describe knowledge as being generated through experience and personal understanding. Carper (1975, 1978) discusses the four fundamental patterns of knowing: empirics (know what), aesthetic (know how), personal knowledge (do I know myself and others?) and ethics (know why I should). This work draws together a range of essential knowledge that can be used to inform nursing practice, acknowledging the importance not just of scientific knowledge, but of knowledge developed through experience, personal understanding and interpretation and of moral and ethical reasoning. Schon (1987) developed the concept knowing how as part of 'knowing-in-action'. This supports the generation of personal and tacit knowledge that Rolfe (1998) suggests we all possess but are unable to articulate.

This chapter considers the range of knowledge available to inform practice decisions. First, we review scientific knowledge and consider how it is generated. Second, we consider other sources of knowledge developed through experience that include tradition, intuition and tacit understanding. Third, personal knowledge is presented as individual knowledge used to support care delivery on an individual basis. Liaschenko and Fisher (1999) describe this as person knowledge, that of knowing the patient as an individual person.

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It should be noted that, in making decisions to deliver care and using evidence to support practice delivery, nurses may draw on a range of sources of knowledge. None exist exclusively and nurses may use scientific, personal knowledge and experience in making judgements. Having considered the complexities of nursing knowledge, we will review the development of policy to support nursing research. The chapter will end in conceptualising nursing research, defining it and considering how it informs nursing practice as part of a range of evidence that supports care development and delivery.

Learning outcomes

This chapter is designed to enable the reader to:

- Identify the sources of knowledge available to inform nursing and health-care practice
- Understand the complex nature of nursing research
- Appreciate the importance of research and evidence-based knowledge in informing practice, theory and policy

KEY TERMS

Intuition, Personal knowledge, Scientific knowledge, Tacit knowledge, Tradition

Scientific knowledge

Scientific knowledge is positioned at levels one through to four of the hierarchy of evidence (see Chapter 1) and makes a significant contribution to the development and application of nursing practice. Scientific evidence also informs nursing education, policy and management. This form of knowledge is generated through research activity, where a rigorous approach is followed to obtain findings that will be used to inform nursing practice. We discuss the process that researchers use to generate scientific knowledge in Chapter 3, and within the book we explore a number of approaches that can be used to support scientific knowledge generation (see Chapters 13 to 17). Whereas many forms of knowledge can be based on individual experience, gained through trial and error and based on **traditions**, scientific knowledge results from a methodological process that is laid open for scrutiny and critical review.

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Research activity can be classified as being part of inductive and deductive approaches. Generally, a deductive approach implies that there is a theory or knowledge in existence which will be tested through the research process, whereas an inductive approach suggests that research will try to develop theory (Hek and Moule, 2006). Deductive and inductive positions in research are often described as being part of positivist and interpretivist research. Positivists emphasise the positive sciences, developing knowledge through testing and systematic experience. They employ quantitative methods to answer research questions and use scientific methods to test theory in a rigorous and controlled way. They aim to establish 'truth' that will allow the generalisation or wider use of the results (Pearson et al., 2007).

The 'gold standard' randomised controlled trial is often employed in quantitative research to evaluate the effectiveness of interventions (Centre for Reviews and Dissemination, 2001), such as to see whether one approach to hip replacement works better than another. Elements of randomisation (selecting patients for either the control or research groups randomly) control (having the control group receiving the usual hip to compare with the research group) and manipulation (the research and control groups having different hips) are used (Polit and Beck, 2006) (see Chapter 13). Evidence from randomised controlled trials contributes to levels one and two of the hierarchy of evidence (See Chapter 1), whilst evidence at level three would come from experimental designs without randomisation (see Chapters 13 and 21). There are likely to be examples of care delivery based on scientific knowledge in practice settings. Consider examples of these: Where has a randomised controlled trial or experimental design led to changes in practice?

Whilst positivist scientific approaches to knowledge generation have been important to the development of healthcare practice, especially medical practice, it is recognised that not all research questions can be addressed through such designs. Nursing and healthcare have a number of research questions related to the social aspects of life, wanting to explore the lived experience of patients, carers and staff. Research conducted in the interpretivist paradigm through qualitative approaches is employed to answer such questions and forms level four of the hierarchy of evidence (see Chapter 1). Interpretivists believe that in order to understand and make sense of the world, researchers must interpret human behaviour in natural settings. Qualitative researchers are therefore interested in gaining understanding of complex phenomena, rather than testing for cause and effect relationships seen in positivist approaches (Burns and Grove, 2005). Qualitative methods involve listening to and observing people's interactions and patterns of behaviour. The types of designs used include ethnography, phenomenology, grounded theory, but may also encompass feminist and action research (see Chapters 13 and 17). Data collection is likely to include interviews, focus groups' diary recording and observations. This research approach, rather than seeking to control and measure, avoids exerting any influence on data collection and aims to describe reality and draw understanding from this.

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Many studies use a mixed method approach that includes both qualitative and quantitative research (Bryman, 1988) (see Chapter 20). The use of mixed methods in social research allows the researcher to employ a number of methods to investigate research problems (Denzin, 1989). For example, when exploring the effectiveness of pain control, quantitative measures might include recording of physiological signs with qualitative approaches gaining the patient's views on pain control. Measuring pain relief outcomes would draw on both qualitative and quantitative methods to provide a picture of patient experience and effectiveness of pain control.

Scientific evidence is not the only form of knowledge employed to support decision making in practice. It should be remembered that a range of sources inform nursing decision making and care delivery.

Other sources of knowledge

Tradition

Knowledge passed down through generations of nurses form the basis of traditional understanding. Traditional practices can be conveyed through observed practice, role modelling, written documents, books, journal articles, and often from 'experienced' practitioners. These practices can be imposed: 'This is the way it should be done because this is the way it has always been done'. Such an approach can lead to the development of a nursing culture that accepts practices as being right, without questioning their foundation and evidence base. Examples from current practice can include the daily washing or bathing of patients before mid-morning, recording observations of temperature, respirations, blood pressure and pulse on a regular basis. Some traditional practices can have a useful place in today's nursing. Team handovers serve a useful purpose in ensuring the transfer of patient and other ward-related information from the out-going to the in-coming nursing team. The practice can also facilitate learning for student nurses and new staff members and offers an opportunity for socialisation of the team. We can see evidence of traditional informing other areas of practice. Consider, for example: Which practices are informed by tradition?, Why might this be the case?

As new evidence emerges there is often a need to challenge and change traditional and ritualistic practices. The need to practice using current evidence is expressed as part of the Nurses Code of Professional Conduct (Nursing and Midwifery Council, 2008; www.nmc-uk.org) requires all practitioners to

'Keep your knowledge and skills up-to-date throughout your working life.' (NMC, 2008: 7)

One major example of such challenge to traditional knowledge through the development of new evidence came in the 1990s. Manual handling practices

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underwent change, using risk assessment and equipment to encourage patients to move themselves. These guidelines, presented by the National Back Pain Association and the Royal College of Nursing (1997), replaced traditional lifting practices and improved the safety of staff and patients.

Intuition and tacit knowledge

Any experienced practising nurse would probably be able to provide examples of employing **intuition** and **tacit knowledge** in practice situations. The use of intuition and tacit knowledge can include anticipating cardiac arrest, the need for pain relief or belief that a patient's life is near its end. Burnard (1989) has described intuition as an acute sensitivity or 'sixth sense', drawing on experience and knowledge to make a care judgment. Tacit knowledge is also developed through experience gained by engagement in practice. Gunilla et al. (2002) propose that tacit practice can be role modelled and displayed in practice delivery to future generations of nurses.

Benner (1984) has suggested that nurses evolve into expert practitioners, using experience to develop aesthetic knowledge (know-how). Expert nurses will use know-how to identify patients' needs, engaging in the delivery of holistic care as intuitive doers (Benner, 1984). Whilst Benner also acknowledges that the expert nurse will draw on scientific or 'know what' knowledge, the idea that nurses practice can be informed by intuition, a knowledge base that Walsh (1997) suggests is not explicit, has led to debates around accountability.

It is suggested that a lack of objectivity and ability to identify a rationale behind decisions taken using intuitive and tacit knowledge prevents it being viewed as a phenomenon for scientific study and adversely affects its recognition and standing as a knowledge base for practice (Hek and Moule, 2006). There are occasions however, when such knowledge is effectively employed to support decision making. Rew and Sparrow (1987) cite the use of intuition and tacit knowledge in situations where there may be limited information with which to interpret a possible behavioural response or in cases where ethical dilemmas are presented. Try to identify some examples of the use of intuition and tacit knowledge in practice: When is this type of knowledge used?

Dreyfus and Dreyfus (1985) offer a model of intuitive practice, described by Benner and Tanner (1987), which includes six elements of intuitive practice (See Table 2.1)

The model provides a framework for the analysis of intuitive practice that includes know-how.

As debates surrounding the value and role of intuitive and tacit knowledge in nursing practice continue (Gunilla et al., 2002; Whitehead, 2005), it should be acknowledged that intuition and tacit knowledge can inform the development of **personal knowledge**. Such knowledge may ultimately, therefore, form part of the knowledge that informs professional practice.

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Table 2.1 Elements of intuition

Element	Form of intuition
Pattern recognition	The ability to recognise patterns of responses and changes of behaviour; for example, to recognise a rise in patient temperature through behaviour patterns.
Similarity recognition	Recognising patient characteristics seen previously and using these as part of interpreting a situation.
Commonsense understanding	Recognising and using commonly accepted practice.
Skilled know-how	Making judgments about what seems to be the appropriate care for a patient.
Sense of salience	Recognising the importance of a particular information source, even though this may be contradicted by another.
Deliberating rationality	Maintaining a broad view of the situation.

Source: Adapted from Benner and Tanner, 1987

Personal knowledge

Personal knowledge is individual knowledge shaped through being personally involved in situations and events in practice. Liaschenko and Fisher (1999) refer to 'person knowledge', to knowing a person as an individual, understanding personal experience of illness and care delivery. Benner (1984) describes five levels of experience (see Table 2.2).

Often experience is developed through observing role models in practice, and as such can be developed to include traditional and tacit knowledge. Trial and error can also play a part in the development of knowledge gained through experience, trying different a

Table 2.2 Five levels of experience

Level	Type of experience
Novice	No personal experience of the activity. Preconceived ideas and expectations of practice that are refined and developed through experience.
Advanced beginner	Some experience to guide interpretation and intervention in recurrent situations.
Competent	Use personal knowledge gained through experience to undertake care that is deliberate and organised.
Proficient	Works with the individual patient and family recognising the need to treat holistically and individually.
Expert	Extensive experience to analyse situations and deliver skilful care.

Source: Adapted from Benner, 1984

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approach with unknown outcomes (Burns and Grove, 2005). Knowledge gained through this method becomes personal, often without formal documentation, sharing or research of the practice to confirm effectiveness for more general use. There are probably examples of drawing on trial and error to develop personal knowledge that we can identify: Consider an aspect of practice that may have been developed in this way.

Personal knowledge can be developed through the student reflecting on practice experiences. Personal expertise is therefore developed through a range of experiences and can be based on a number of sources of knowledge. Its status as a form of evidence on which to base practice is, however, subject to question. Closs (2003) suggests we should question expert knowledge that may be formed on limited experience and personal bias, without reliable foundation.

Nursing research policy in the UK

Nursing research has the potential to make a significant contribution to evidence-based practice and the development of cost and clinically effective care. At the time of publication, a number of key documents have highlighted the importance of developing nursing research (see Table 2.3). Additionally, there are publications relating to nursing research development within Wales, Scotland and Ireland (National Assembly for Wales, 1999; Scottish Executive, 2001; Department of Health and Children, 2003).

Table 2.3 Key strategy documents

Document	Development issues
<i>Making a Difference: Strengthening the Nursing, Midwifery and Health Visiting Contribution to Health and Healthcare</i> (DoH, 1999)	<ul style="list-style-type: none"> • Need for nurses to develop critical research appraisal skills. • Need for nurses to influence the government's research and development policies.
<i>Towards a Strategy for Nursing Research and Development</i> (DoH, 2000)	<ul style="list-style-type: none"> • Need for monies to support research programmes. • Need for capability building through collaborative partnerships.
<i>Promoting Research in Nursing and the Allied Health Professions</i> (HEFCE, 2001)	<ul style="list-style-type: none"> • Need for capability building to support evidence-based practice and RAE.
<i>Best Research for Best Health: A National Health Service Research Strategy</i> (DoH, 2006)	<ul style="list-style-type: none"> • Need to develop a world-class environment for health research, development and innovation.
<i>Developing the Best Research Professionals</i> (UKCRC, 2006) (Consultation exercise in place during the writing of this text)	<ul style="list-style-type: none"> • Need to develop clinical research career structures for nurses – suggested models based on clinical academic career model.

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It should be noted that policy changes rapidly, and readers may find it useful to keep updated by accessing the Department of Health website (www.oh.gov.uk).

For some time there has been concern that nursing needs to influence the Department of Health (DoH) research and development (R&D) agenda and help build its research capacity (an ability to appreciate and use research) and capability (an ability to undertake research). Presenting at a R&D workshop on the contribution of nursing research in R&D, Rafferty (2000) suggested that nurses are the largest part of the NHS workforce, accounting for 70 per cent of the wage bill and 40 per cent of the overall budget. It was postulated that perhaps 40 per cent of the R & D budget should be invested in research that impacts on the work undertaken by such a majority workforce. Additionally, the need to build research capacity and capability in nursing has been acknowledged and upheld through achievements in the Research Assessment Exercise (RAE). Unit of Assessment (UoA) 10 relates to nursing and midwifery. The data are entered by university departments and include research income, publications and doctoral studies completions. Esteem indicators are scored and achievements are related to research funding allocations. Following the last RAE in 2001, the Higher Education Funding Council for England suggested that nursing is starting from a low baseline, though it did acknowledge a funding increase from 3 million in 1996–97 to 9.7 million in 1999–2000 from the DoH, NHS regional offices and trusts (HEFCE, 2001). Despite this increase it is still recognised that nursing research is not only competing against a range of health professionals well established in research, but is also affected by the lack of research monies available for nursing research, as highlighted above (Rafferty 2000). To help address this the HEFCE has provided additional capability, building monies to nursing linked to the RAE 2001 achievement (HEFCE, 2001), and nursing is being encouraged to influence the R&D agenda.

The Department of Health aims to see the UK as a world-class environment for health research, development and innovation, employing a strategy set out in *Best Research for Best Health: A National Health Service Research Strategy* (DoH 2006). It outlines a five-year development plan that aims to see more patients and healthcare professionals engaged in health research that will increase the evidence-base and improve health and health care. To support this, the development of research policy and commissioning of research through the NHS R&D programme has been recast into three key programmes:

- Health Technology Assessment – devices, equipment, drugs and procedures across all healthcare sectors.
- Service Delivery and Organisation R&D programme – how organisation and delivery of services can promote quality care.
- New and Emerging Applications of Technology Programme (NEAT) – use of new and emerging technologies to develop healthcare products and interventions.

The UK Clinical Research Collaboration (UKCRC) established in 2004 has an aim to increase research capacity in the NHS, developing an expert workforce. It is currently

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engaged in developing a research career structure for nurses, building on the model of development for clinical academic careers. Presented as a consultation document, *Developing the Best Research Professionals* (UKCRC, 2006), a final report is due in 2008 (www.ukcrc.org.uk). The possible career structures include integrated pathways supporting education and practice development in research that require collaborations between universities and the NHS. There is no doubt that all parties involved will welcome the move to recognise and develop nurse researchers, though we must wait and see how this is operationalised. There are many issues requiring clarification such as the funding of the initiative, the need for collaboration and agreement on knowledge and skills required, and there is still a need to support nursing-led research.

Conceptualising nursing research

In thinking about nursing research, a broad view of professional practice needs to be taken. Nursing research encompasses the practice of nursing, which is in itself complex. Practice-based research questions may try to test new practice or support care development. Additionally, they can measure the effectiveness of care, explore carer and family issues, or consider the interprofessional nature of care delivery.

Nurses do not work in isolation, but with a range of professionals in different healthcare environments. The research agenda needs to reflect this and consider questions where a multi-disciplinary approach to care is required.

Nursing research also explores the educational preparation of nurses, reviewing the pedagogy of nursing, and how best to support learning and teaching of nurses and other healthcare professionals. Research will additionally review the management of nursing services, such as the development and effectiveness of new roles.

Nursing is an emerging profession and one that often draws on other disciplines in its execution of research. The social sciences, psychology, physical sciences, environment sciences and epidemiology can inform nursing research. Indeed, research teams may often reflect a number of disciplines in their make-up, utilising a range of professions and taking on board difference discipline perspectives in the research design. For example, researching aspects of mental healthcare can take a pharmaceutical, psychological or sociological perspective. In Chapter 1 we discussed the developing research roles of nurses, engaging in nursing research within universities and practice settings. Attempts to increase the research capacity (number of nurses able to understand research) and capability of nurses (nurses able to research) through career mapping are under development (UKCRC, 2006) and formally recognise the need for nurses to engage in researching their own professional practice, as highlighted in previous reports (HEFCE, 2001). Such drivers acknowledge the need to link practice, education and research within nursing in order to secure an evidence-based future (HEFCE, 2001).

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Nurses should be involved not only in researching their practice but also in identifying the research agendas. In 2000 the Department of Health (DoH, 2000) emphasised the need to identify research priorities within nursing to ensure that appropriate aspects of nursing delivery are considered. This aimed to engage nurses in developing the research priorities for practice and to ensure the focus of research activity.

In undertaking such research, a multitude of research methods will be employed, in both positivist and interpretivist paradigms. Depending on the research question(s), those exploring nursing issues will draw on qualitative and quantitative approaches and a range of methods of data collection. The social sciences play a key role in much nursing research activity as they are employed to consider issues related to the patient, carer and family that can be physiological, psychological or socially derived. These are not the limits of nursing research, however, which may need to test theory and practice developments through more rigorous positivist approaches. Given the scope and nature of nursing research, our definition offered in Chapter 1 reflects its complexity and recognises the need to employ a range of methods and methodologies to address the broad range of questions and create new knowledge for practice education and policy. As a reminder, our definition based on that within Hek and Moule (2006) is:

A systematic approach to gathering information for the purposes of answering questions and solving problems in the pursuit of creating new knowledge about nursing practice, education and policy. (2006: 10)

The remaining chapters of the book consider more fully the complexities of developing, undertaking and implementing nursing research to support decision making and practice. Whilst we should acknowledge that a range of evidence can inform practice, that derived through scientific approaches is significant to the support of evidence-based practice.

Chapter summary

- Nursing knowledge is multifaceted and is developed through science and experience.
- Nurses can draw on a range of sources of knowledge to support decision making and care delivery.
- Scientific knowledge is constructed through methodological processes and is open to scrutiny.
- Scientific knowledge can be developed through deductive and inductive research approaches.
- Tradition, intuition and tacit understanding can underpin nursing care delivery.
- Personal knowledge is knowing the patient as an individual.
- The knowledge base for practice should be questioned.
- Nurses need to be involved in developing research agendas and in researching practice.
- Nurses are still developing research skills and expertise.

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