



School Of Health, Department of Adult  
Nursing and Health

## **Accessing and Assessing Research for Evidence-based Practice**

Level 8, Module Resource Book for module M2B720411.

Resource Book may be used by students undertaking other level 8 modules  
within the School of Health.

Jamie Frankis  
Lesley Whyte  
Louise James

August 2010  
(10<sup>th</sup> Edition)

Angela Poat  
Rosemary Whyte  
Lyz Howie  
Pauline Hamilton

*'Evidence based health care relates to all the health professions- medicine, nursing and allied health- as well as policy makers, planners and executives. Evidence based clinical practice takes into account the context within which care takes place; the preferences of the client; the clinical judgement of the health professional, as well as the best available evidence.'*

(Holland & Rees, 2010, p9)

Contents	Page
Introduction.....	4
Module learning outcomes.....	5
Evidence-based practice.....	6
Development of a practice-based question.....	17
Research Evidence: perspectives, designs and approaches.....	27
Searching for evidence to answer practice-based questions .....	42
Evidence-based practice and the research loop.....	55
The Research Loop : Development of a research question aim, objective or hypothesis	57
The Research Loop : Literature review.....	63
The Research Loop : Population and sampling.....	67
The Research Loop : Ethical issues in research.....	72
The Research Loop : Data collection.....	78
The Research Loop : Analysis of qualitative & quantitative data .....	86
Assessing the quality of research evidence.....	93
Checklist for critiquing a research article.....	94
Dissemination and utilisation of research evidence for practice.....	99
Appendix 1: Glossary of terms commonly used in research.....	108
Appendix 2: SoH referencing guidelines.....	112
Appendix 3: Useful websites.....	121

Learning activities	Page
A1 - Safe practice.....	10
A2 - Clinical decision-making.....	11
A3 - Developing a practice-based question (1).....	23
A4 - Developing a practice-based question (2).....	24
A5 - Choosing the right approach for the research topic.....	30
A6 - Using survey design in practice.....	35
A7 - Different cultures.....	38
A8 - Research perspective and design / approach.....	41
A9 - Identifying key words.....	53
A10 - Key terms in quantitative research.....	59
A11- Writing a hypothesis.....	59
A12 - Research question, aims and objectives.....	60
A13 - Writing a research question.....	61
A14 - Health challenges.....	62
A15 - Assessing the literature.....	66
A16 - Sampling.....	70
A17 - Ethics and the profession.....	72
A18 - Finding out about ethics approval processes.....	74
A19 - Ethical approval.....	76
A20 - Writing questions for a data collection tool.....	82
A21 - How to maintain rigour in data collection.....	84
A22 - Identification of issues from qualitative data.....	89
A23 - Creating a concept map .....	89
A24 - Reflection.....	97
A25 - Where to source research evidence for practice.....	100
A26 - Dissemination of research.....	101
A27 - Developing practice from research-based evidence.....	104

## Introduction

This workbook has been developed in response to the need for a basic resource for those with no previous formal knowledge of research and its contribution to evidence-based practice. Each section is designed to include:

**Learning Outcomes** to guide you on the knowledge you should have on completion of each section;

An introductory **Fact File** providing a summary of the topic;

**Learning Activities** to develop understanding;

**Critical Reading Tips** to alert you to the things you should look out for when analysing a piece of research.

The **appendices** contain useful resources to help develop your understanding of evidence-based practice. In particular, appendix 1 provides a glossary of research terms used in this book. In order for this workbook to be an effective learning tool, you should complete all parts within each section and undertake the directed reading or read the appropriate section from your chosen research textbook. Details of various resources are given in the module guide - we suggest that you consider these research textbooks and use the one which you feel most comfortable with.

This workbook is aimed at students undertaking Level 8 '*Accessing and Assessing Research for Evidence-based Practice*' or as a refresher for students on the Level 9 module. A workbook on statistics "Introduction to Statistics for Health Care Research" (Gardiner, 2008) is an adjunct resource for students. Lectures underpin the theory surrounding evidence-based practice, illustrated with real-world examples. During the group sessions you will learn and apply critical reading skills by working through the learning activities in this workbook. If you are using this workbook as a refresher for level 9 study, these activities will be a useful revision. The critical approach advocated within this workbook should be applied to any piece of research you encounter, whether you wish to use it to select evidence for practice or for other academic assignments.

Please note that throughout this workbook we have referred to nurses and nursing students. The content is equally applicable to midwives and other health care professionals.

## **Module learning outcomes for 'Accessing and Assessing Research for Evidence-based Practice' (Level 8).**

**By the end of this module you should be able to:**

1. Define the elements of evidence-based practice;
2. Discuss the professional requirement to deliver evidence-based practice;
3. Identify, classify and construct different types of questions that arise from practice;
4. Identify useful sources of health care evidence;
5. Skilfully search the principal sources of health-care evidence to identify and obtain research;
6. Describe approaches to research and identify methods appropriate to the investigation of different types of questions;
7. Explain the key stages of the research process;
8. Use a checklist as a framework to begin to systematically critique individual pieces of evidence;
9. Identify and interpret descriptive and inferential statistics and various qualitative analytical approaches used in health care research;
10. Discuss a range of strategies to implement evidence-based health care.

## Evidence-based practice

### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Define evidence-based practice (used interchangeably with evidence-based nursing / midwifery and evidence-based health care).
- Demonstrate how your clinical decision-making can be improved through an understanding of the elements of evidence-based practice.

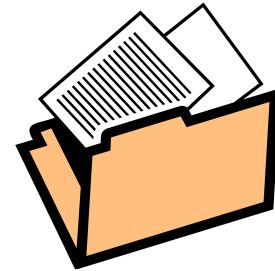
### Fact File

#### Defining evidence-based practice

The definition of evidence-based medicine by Sackett et al (1996) has been adopted widely across the health care professions. It is defined as:

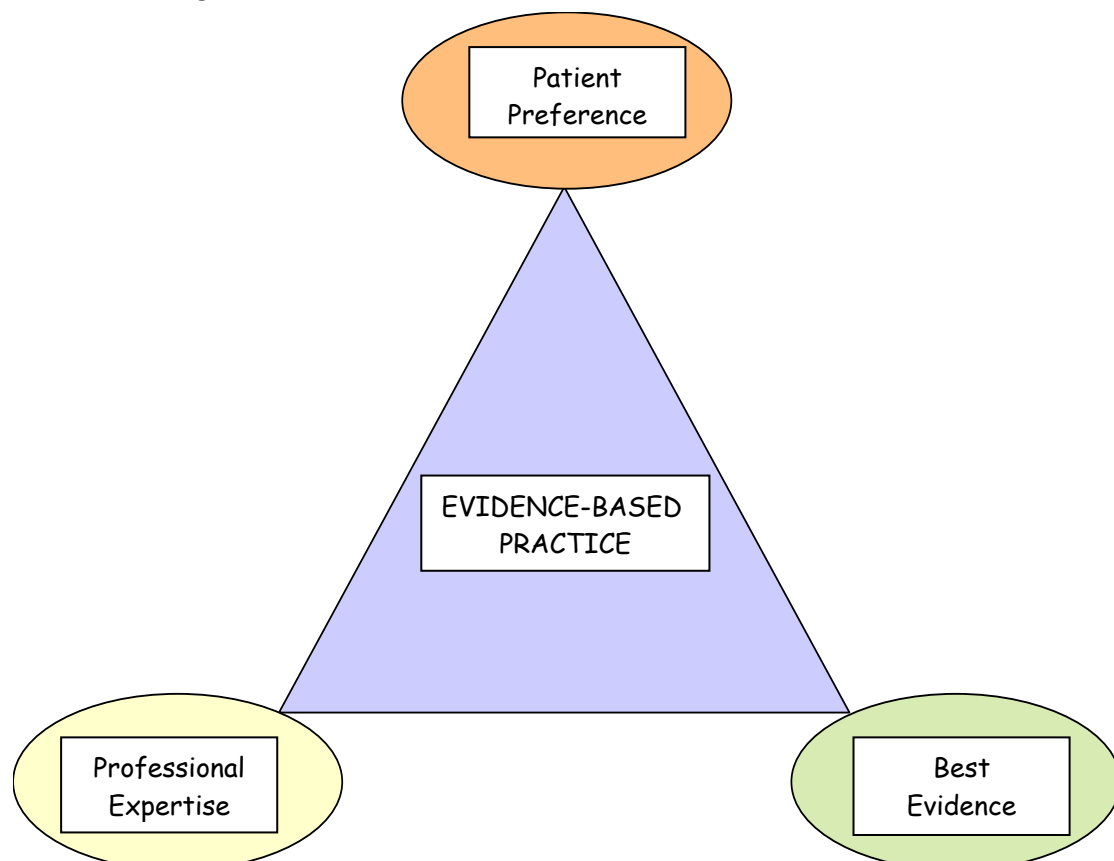
*"...the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research"*

(Sackett, et al, 1996, p71).



#### The three elements of evidence-based practice

Evidence-based practice does not rely solely on evidence from research studies, protocols and guidelines. It must also take account of professional expertise, as well as the needs and preferences of patients and clients. The linking of these 3 factors is shown in the figure below.



**Patient preference:** "Determining what is right for a population or an individual cannot be based only upon evidence of effectiveness derived by research. Personal and social values and beliefs, culture, past experience and individual choice also influence such decisions." (Collinson, 2005, p195)

**Best evidence:** As a healthcare professional, it is important "that you are able to be a discerning consumer of evidence. You should be able to make a judgement about the strengths, weaknesses and limitations of the way in which evidence was generated, to appraise and use it critically, if appropriate, not just to take all evidence on absolute trust." (Humphris, 2005, p16)

**Professional expertise:** This takes into consideration each professional's own level of expertise, skills and clinical judgement. (CASP, 2002)

### **Why do we need evidence-based practice?**

Advances in technology, pressure on limited resources, ageing populations and changes in disease patterns have all contributed to and influenced health care policies. This has produced a tripartite approach to health care that includes best available evidence, professional expertise and patient preferences and needs. The belief that research evidence alone is relevant for patient care does not take into account patient preference and individualised care.

### **Is evidence-based practice new?**

Evidence-based practice is not new. In the 1980s changes to the NHS brought about a shift of emphasis that required evidence to underpin health care delivery. More recently, the debate on what constitutes evidence has progressed to include a number of sources of good evidence in addition to evidence from research studies.

### **Why is evidence-based practice relevant to my role as a health professional?**

Practitioners can have confidence in their practice knowing that it is based on research, which has been shown to be beneficial for patients. Evidence-based practice encourages a shared vision within an organisation, which contributes to increased job satisfaction (CASP, 2002) and also enables patients to be involved in decisions about their care.

### **Evidence-based health care - an approach for all health care professions**

Flemming (2002) argues that accepting Sackett, et al's (1996) definition does not imply either that a 'medical' approach is better than a 'nursing / midwifery approach' or that any particular research design is considered better than others. She asserts that "...the evidence we need to make evidence-based decisions is varied, as is the nature of the decisions we make in practice. This means we require different types of research evidence for different types of decisions" (Flemming, 2002, p111).



### **Professional accountability, evidence-based practice and clinical governance**

The NMC's code of conduct, 'The Code, Standards of Conduct, Performance and Ethics', (NMC 2008) provides a framework for professional accountability and practice. It states that 'nurses' must provide a high standard of care at all times (NMC, 2008 p 1). It is also useful to consider the NMC's definition of lack of competence: "a lack of knowledge, skill or judgement which may be accompanied by a negative attitude. This is of such a nature or extent that the nurse, midwife or health visitor is unfit to practice, and that such concerns having been drawn to the attention of the practitioner, he or she has either undergone training and supervision but has failed to make the required improvement to practice, or has refused to undergo further training or supervision". (NMC, 2008; p.6)

The need for professional accountability is reinforced within the government White Paper 'Equity and Excellence : Liberating the NHS' (2010) which supports measures to improve quality. Through client involvement, practitioners will be supported, ensuring evidence based decisions are made at local level to ensure positive client outcomes.

### **Pressure from knowledgeable consumers of health care services**

The decisions taken by nurses and other health care professionals are increasingly challenged by health service users, who have access to much of the same research and other evidence as you. It is no longer unusual for patients and clients to challenge decisions being made about their care by referring to something they have read, seen on television or found on the internet. While no individual can hope to keep abreast of all new changes, it is a professional responsibility to know where to look for the best evidence, and how to assess its value. Humphris (2005) summarises the dilemma for practitioners who cannot keep abreast of all new developments because of the volume of information available;

"The knowledge base of an individual clinician is non-generalisable... The limitations of individuals to learn and retain all the knowledge necessary to inform professional practice becomes more acute as the volume of evidence expands" (Humphris, 2005; p.35).

## The professional requirement to deliver evidence-based practice

All health care professionals in nursing and midwifery have a duty of care to their patients and are governed by the NMC "Standards of Conduct, Performance and Ethics" (NMC, 2008). The need for evidence-based practice is demonstrated by the following quotations:

"You must keep your knowledge and skills up-to-date throughout your working life." (NMC, 2008, p 4)

"You must deliver care based on the best available evidence or best practice." (NMC, 2008, p 4)

### NMC proficiencies for entry to the professional register for nurses\*

The Nursing and Midwifery Council has identified proficiencies that must be met prior to registration\* (NMC, 2004a). Listed below are those specific proficiencies that are addressed, in whole or part, by the learning outcomes of this module.

#### Care delivery domain

- *Based on the best available evidence, apply knowledge and an appropriate repertoire of skills indicative of safe nursing practice:*

- *Ensure that current research findings and other evidence are incorporated in practice.*
- *Engage with, and evaluate the evidence base which underpins safe nursing practice.*

(p.30)

- *Demonstrate sound clinical judgement across a range of differing professional and care delivery contexts*

- *Use evidence-based knowledge from nursing and related disciplines to select and individualise nursing interventions.*

(p.31)

#### Care management domain

- *Contribute to public protection by creating and maintaining a safe environment of care through the use of quality assurance and risk management strategies:*

- *Manage risk to provide care which best meets the needs and interests of patients, clients and the public.*

(p.32)

- *Demonstrate Key Skills:*

- *Literacy - interpret and present information in a comprehensible manner*
- *Numeracy - accurately interpret numerical data and their significance for the safe delivery of care*
- *Information technology and management - interpret and utilise data and technology, taking account of legal, ethical and safety considerations, in the delivery and enhancement of care*
- *Problem solving - demonstrate sound clinical decision-making which can be justified even when made on the basis of limited information.*

(p.33)

\*See NMC (2004b) for proficiencies for entry to the register for midwives

### **A1 - Learning activity - Safe practice**

The following example, based on a real case, is described by Castledine (2002) as part of a series in the British Journal of Nursing on professional misconduct case studies.

Maggie was a recently qualified neonatal nurse working in a large busy teaching hospital. She had just completed the neonatal intensive care course but had struggled through it and completed it 6 months after a fellow rival colleague who was working with her on the same shift. Maggie was therefore keen to show staff that she was competent at her job. Today she was looking after a new critically ill neonate with congenital abnormalities who was on ventilation support. On the ward round the consultant wanted the present type of ventilation to be changed and asked Maggie to do this. Her rival colleague who was familiar with the process asked if Maggie could manage and she maintained that she could. Maggie carried out the procedure with the student nurse. Following this, the baby collapsed and medical staff had to intervene, her condition deteriorated throughout the day and she later died. Maggie failed to inform medical staff or colleagues at the handover on the manner in which the ventilation was changed. The incident was also not truthfully recorded or documented. On post-mortem examination the death of the baby was attributed to the ventilation.

**What issues arise from this study in relation to the following?**

- What responsibilities does Maggie have in relation to keeping up to date?
- What responsibilities does the employer have in assisting staff to keep up to date with their competence?
- From your experience, identify another aspect of practice where it is essential to maintain up-to-date skills and knowledge.
- This was an example of not carrying out safe practice. How could Maggie have made sure that her practice was safe and that she was competent?

## Clinical decision-making

Substantial research has investigated how nurses use evidence when making decisions about nursing care during the everyday course of their work (McCaughan et al, 2002). Factors that influence the decisions you make include

- Evidence from research
- Patient preferences
- Clinical experience (including peers, colleagues etc.)
- Available resources (e.g. equipment, technology etc.)

Each element of the decision-making process is important, but it could be argued that evidence from research is the least well integrated feature in decision-making. The extract below from an article by Thompson et al (2002) summarises the main elements affecting clinical decisions.

### A2 - Learning Activity - Clinical decision-making

'Research evidence suggests that hydrocolloid dressings (£2.23) are no more effective than knitted viscose dressings (25p each) for healing venous leg ulcers when used with compression (Nelson et al, 2000). However the patient, a 50 year old teacher's assistant prefers to use the more expensive dressings. She can apply them herself under compression stockings without having to wait for a district nurse or having to attend the treatment room, and she no longer feels like an invalid. You have watched her apply the dressing and asked her to report any changes such as odour, exudates, pain or inflammation'

(Thompson et al., 2002)

1. What dressing decision would you make?

2. Outline how each of the following four elements influenced the decision made by you.

Evidence from research

Patient preference

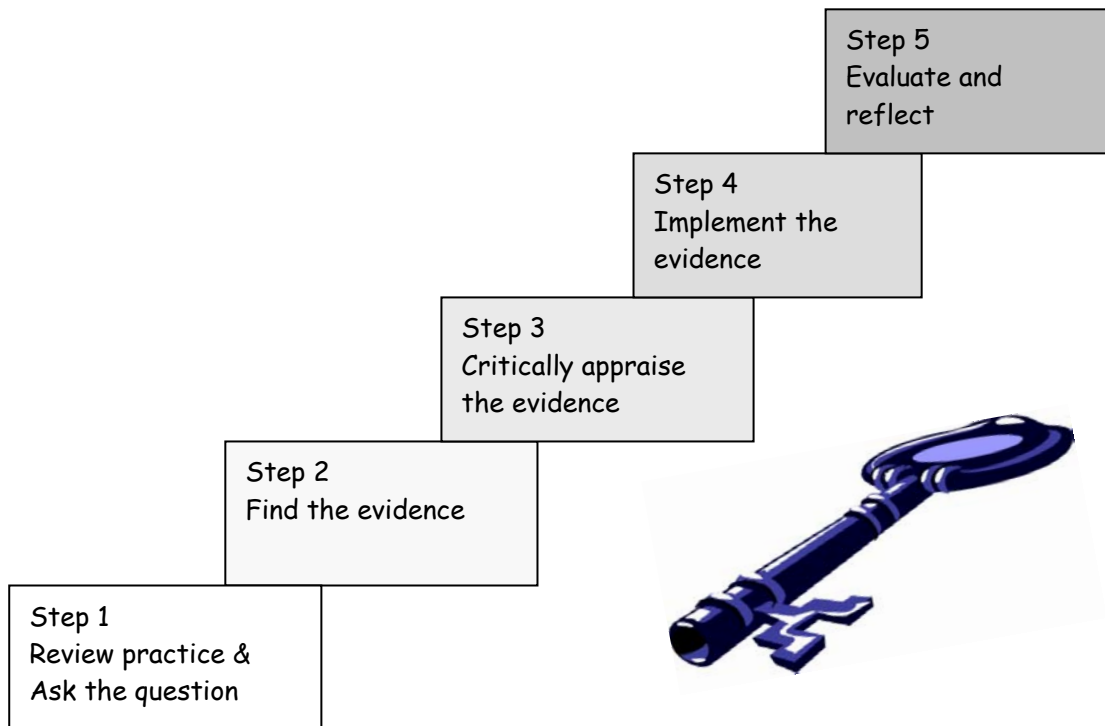
Clinical experience

Available resources

## Achieving evidence-based practice – the key steps

Nurses and other health care professionals require a range of skills to help them achieve evidence-based practice. These are briefly set out below and are explored in more depth in CASP (2002), Flemming (2002) and in the remainder of this work book. A brief overview of the five steps to 'evidence-based practice' is set out in the figure below.

The key steps to evidence-based practice (CASP, 2002).



### **Step One: Review practice, identify uncertainty; phrase answerable questions**

Within your own field of care, reflect upon an area of practice that you feel would benefit from change - this enables you to formulate a practice-based question(s) (PBQ) which provides a focus when searching the literature. It is important to develop an open mind to distinguish what you believe to be true and what is actually true (i.e. evidence based).

Flemming (1998) describes three elements of many practice-based questions:

- the situation, population or person you are interested in (e.g. diabetic in-patients with problems of compliance with treatment);
- the intervention (e.g. a self-medication training package);
- the outcome (the end point of interest, e.g. fewer compliance problems).

When considering what it is you want to know in practice in order to locate and apply appropriate evidence to your decision, it is helpful to develop an answerable question, **Step One** This will be further developed in the section on the **development of a practice-based question**.

**Step Two: Find the evidence**

Search in journals, bibliographic databases, textbooks, the internet and distilled and condensed information sources (these are summaries of high quality research on a given topic, which may also be referred to as pre-appraised clinical evidence. The journals Evidence Based Nursing, Evidence Based Midwifery and Evidence Based Mental Health provide many such examples).

**Step Three: Critically appraise the evidence**

This best done by use of a checklist appropriate for the source of information you are accessing (see 'Checklist for critiquing a research article' on page 94). Only certain types of appraisal are covered in this workbook, but for those interested, Flemming (2002) provides further guidance on appraising a range of information sources.

**Step Four: Implement the evidence**

Practitioners rarely operate independently. To ensure care is delivered according to best evidence may require major changes in service, and this can only be done through a planned process of change management. (Hamer & Collinson, 2005).

**Step Five: Evaluate and reflect**

The final stage identified is to evaluate and reflect. One method of evaluation explained by Flemming (2002) is clinical audit. This is an ongoing cycle, during which practitioners need to address all stages of the cycle:- observing current practice, setting standards of care, comparing practice with the standards and implementing change.

**Developing confidence in understanding and applying research to inform practice**

There is a staged learning journey for the practitioner who wants to become confident reading and interpreting research studies. This includes:

- Learning the language of research.
- Understanding the different elements of the whole research process.
- Applying this knowledge to interpret research articles.
- Using research to inform practice.

Unless these 4 stages are understood then the nurse is unlikely to have the skills to make decisions about what is 'best evidence for practice'. The following sections of this workbook will help you achieve these goals.

### **Critical Reading Tip**

#### **What does being 'critical' mean?**

Throughout this module, you will need to develop your critical thinking skills. However, at the outset, many students can be confused by what being 'critical' actually means.

As Wade and Tavis (2008, p.7) explain 'critical thinking is the ability and willingness to assess claims and make objective judgments on the basis of well supported reasons and evidence rather than emotion and anecdote'. To critique a research study then, you need to consider both its strengths and weaknesses - what has been done well, where are the flaws and what does that lead you to conclude. You need to compare the way the study has been conducted with factual information from research text books which tell you how things should (and should not) be done. This requires you to be familiar with, and understand, the principles of both qualitative and quantitative research.

Therefore, critical thinking is not just about pointing out the problems with a research study, but is concerned with weighing up the good and bad points of the research study - in relation to current empirical thinking (using appropriate references) - to determine whether and how the evidence it provides can inform your practice.

---

**In - text references: Evidence-based practice**

---



Critical Appraisal Skills Programme. (CASP)(2002) *Evidence-based health care*. CASP: Milton Keynes.

Collinson, G. (2005) "Chapter 10: Ethical Change" In: Hamer, S. and Collinson, G., (eds.) *Achieving evidence-based practice: a handbook for practitioners*, 2<sup>nd</sup> ed., Baillière Tindall: Edinburgh, pp. 195-209

Department of Health, Equity and Excellence : Liberating the NHS (2010)  
[http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@en/@ps/documents/digitalasset/dh\\_117794.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_117794.pdf)

Flemming, K. (1998) "Asking answerable questions", *Evidence-based Nursing*, Vol. 1 (1), pp. 36-37.

Flemming, K. (2002) "Making sense of research evidence to inform decision making", In: Thompson, C. and Dowding, D. (2002) *Clinical decision making and judgement in nursing*. Churchill Livingstone: London.

Humphris, D. (2005) "Types of evidence" In: Hamer, S. and Collinson, G., (eds.) *Achieving evidence-based practice: a handbook for practitioners*, 2<sup>nd</sup> ed., Baillière Tindall: Edinburgh, pp. 15 - 39

Holland K., Rees C., (2010) *Nursing: Evidence Based Practice Skills*, Oxford, Oxford

Nelson E.A et al. (2000) "Venous Leg Ulcers", *Clinical Evidence*: London, In Thompson, C., McCaughan, D., Cullum, N., Sheldon, T. and Raynor, P. (2002) "The value of research in clinical decision-making", *Nursing Times*, Vol. 98 (42), pp. 30-33.

NMC (2004a) *Standards of proficiency for pre - registration nursing education*, Nursing and Midwifery Council, London

NMC (2004b) *Standards of proficiency for pre - registration midwifery education*, Nursing and Midwifery Council, London

NMC (2008). *The Code, standards of conduct, performance and ethics for Nurses and Midwives* Nursing and Midwifery Council London

Sackett, D., Rosenberg, W., Muir Gray, J., Haynes, B and Scott Richardson, W (1996) "Evidence-based medicine: what it is and what it isn't", *British Medical Journal*, Vol.312, pp.71-72

Thompson, C., McCaughan, D., Cullum, N., Sheldon, T. and Raynor, P. (2002) "The value of research in clinical decision-making", *Nursing Times*, Vol. 98 (42), pp. 30-33.

Wade, C. and Tavris, C. (2008) *Psychology* (International Edition: 9th Ed.) Pearson Education: London.



### **\*Directed Reading**

Albers, L.L. (2001) "Evidence and midwifery practice", *Journal of Midwifery and Women's Health*. Vol. 6 (43), pp. 130-136.

\*Castledine, G. (2002) "Nurse who was not competent and who covered up her actions", *British Journal of Nursing*. Vol. 11 (21), pp. 1359.

\*Cluett, E.R., and Bluff, R. eds. (2006) *Principles and practice of research in midwifery*. 2<sup>nd</sup> ed. Baillière Tindall: Edinburgh. (Introduction and Chapter 2).

\*Craig, J.V., and Smyth, R.L., Eds. (2007) *The Evidence-based practice manual*. Edinburgh: Churchill Livingstone. (Chapter 1)

\*Dawes, M., Davies, P., Gray, A., Mant, J., Seers, K., Snowball, R., eds. (2005) *Evidence-based practice: a primer for health care professionals*. 2<sup>nd</sup> ed. Churchill Livingstone: Edinburgh. (Chapter 1)

\*Flemming, K. (1998) "Asking answerable questions", *Evidence-based Nursing*, Vol. 1 (1), pp. 36-37.

\*Hamer, S. and Collinson, G., eds. (2005) *Achieving evidence-based practice: a handbook for practitioners*, 2<sup>nd</sup> ed., Baillière Tindall: Edinburgh. (Chapters 1,2,10)

\*Parahoo, K. (2006) *Nursing research: principles, process and issues*. Palgrave MacMillan: Houndmills. (Chapter 19).

\*Polit, D.F. and Beck C.T. (2006) *Essentials of Nursing Research - Methods, Appraisal and Utilization*, 6<sup>th</sup> ed. Lippincott, Williams & Wilkins: London (Chapter 1)

\*Sackett, D., Rosenberg, W., Muir Gray, J., Haynes, B and Scott Richardson, W (1996) "Evidence-based medicine: what it is and what it isn't", *British Medical Journal*, Vol.312, pp.71-72

---

### **Further Reading**

McCaughan, D., Thompson, C., Cullum, N., Sheldon, S. and Thompson, D. (2002) "Acute nurses' perceptions of barriers to using research information in clinical decision-making", *Journal of Advanced Nursing*. Vol. 39 (1), pp. 46-60.

Sackett, D., Richardson, L., Rosenberg, W., and Haynes, R. (2000) *Evidence-based medicine: how to practice and teach EBM*. Churchill Livingstone: London.

Thompson, C. and Dowding, D. (2002) *Clinical decision making and judgement in nursing*, Churchill Livingstone: Edinburgh.

Thompson, C., McCaughan, D., Cullum, N., Sheldon, T., Mulhall, A. and Thompson, D. (2001) "Research information in nurses' clinical decision-making: what is useful?", *Journal of Advanced Nursing*, Vol. 36 (3), pp. 376-388.

## Development of a practice-based question

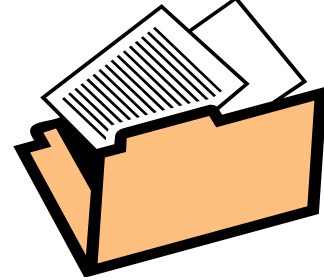
### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Identify and construct various types of questions that arise from areas of practice.
- Explain the process for the development of focused, practice-based questions.

### Fact File

In the context of evidence-based health care, questions come from practice and may involve any aspect of a practice-based encounter. Questions could be used as either the focus of a literature search, to address a practice issues or, if no relevant evidence currently exists, they can be used as the basis for a research study.

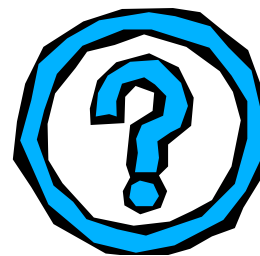


The stages of identifying a question can be summarised as follows:

- i. Identify a broad area of interest or concern (for example, moving and handling guidelines in practice)
- ii. Ask yourself some specific questions about the topic area that you think are not adequately addressed, such as:
  - Why do staff not comply with best practice?
  - Is training adequate in my area?
  - What are the best aids to use with obese patients?
  - What harm can come to patients who are not moved in accordance with best practice?
  - What do patients feel about the use of lifting aids?
- iii. Narrow the topic down to a manageable focus - you can't answer all of the above from one practice-based question. Are you more interested in describing current practice to gain insight into why staff won't comply, or would you like to know more about the potential harm to patients, clients and staff to inform future clinical decisions?
- iv. The practice-based question(s) you devise will influence where you search for the appropriate research evidence.

## Developing a practice-based question

The type of question you develop will depend on the kind of problem identified in practice. Listed below are the **types** of questions that might arise from practice, along with examples of broad questions that might arise from practice for each type.



### Questions on effectiveness of interventions:

- How effective is HAART (Highly Active Anti-Retrovirus Therapy) in reducing the rates of deaths from AIDS?
- How effective are Health Board strategies in reducing the rate of teenage pregnancies in the Health Board area?
- How effective is positional change in preventing tissue breakdown in pressure areas for patients in the community?

### Questions on causation:

- Does the use of hydrocolloid dressings contribute to faster healing rates of sacral pressure sores in elderly hospitalised patients?
- What factors contribute to health promoting nursing care?
- Do people that smoke have an increased risk of developing lung cancer?
- Do 12 hour shift patterns increase the levels of patient satisfaction?

### Questions on nursing diagnosis:

- Does the 'Waterlow Scale' (Waterlow, 2008) accurately identify areas of pressure in elderly diabetic patients?
- Does the Edinburgh Postnatal Depression Scale (Cox et al, 1987) predict the occurrence of postnatal depression in postpartum women?
- Is the Glasgow Coma Scale (Teasdale & Jennett, 1974) a useful tool for determining the consciousness level of a client with a head injury?

### Questions on patient outcome:

- Does HAART contribute to reduced opportunistic infections in HIV positive patients?
- Does staffing skill mix affect wound infection rates in surgical wards?
- How does epidural analgesia affect post-operative mobility in elderly female, orthopaedic patients?

### Questions about feelings, understanding and experiences:

- How do student nurses feel when caring for a terminally ill patient in the community?
- What do registered nurses perceive as the barriers to implementing evidence-based practice in hospitals?
- What are the experiences of inpatients who smoke relating to the smoking ban in Scottish hospitals?

### Questions relating to professional development:

- To update my CPR skills, how do the current refresher sessions compare with a self-instruction programme?
- How is the quality of life of my clients with learning disabilities affected by changes in our referral system for day care services?

### Putting the question into context

When developing a question it is useful to remember the 3 elements of evidence-based practice: Patient preference, professional expertise and best evidence (CASP, 2002).

The following scenario demonstrates a clinical problem where the practice nurse has to find evidence and apply it to the situation.

#### **Scenario - Why the three elements of evidence-based practice are important.**

Sarah is a 45 year old woman recovering from plastic surgery skin grafts to her right hand following a burns accident with a kettle and requires frequent dressing changes. She is a single mother of 2 children aged 5 and 7. She also runs her own sign-painting business and has a very busy schedule and target deadlines to meet. This accident occurred at the busiest time in her yearly calendar. The practice nurse feels that frequent dressing change regime is the best for the long term outcome. Sarah requires her hand to be fully functioning as quickly as possible but feels that the frequent time spent on changing her dressings will be detrimental to her business. The practice nurse must demonstrate to Sarah that this is the most effective care for her and the end result will be favourable. Nevertheless, time will have to be spent on the dressing changes.

**Professional expertise:** The practice nurse knows from previous experiences that frequent dressing changes are crucial to this type of injury. She has worked in this specialty for years and has gained a wealth of information and knowledge from caring for these clients.

**Best evidence:** As a health professional it is important that the practice nurse seeks all sources of evidence and appraises its quality and so as to inform the client of the most up-to-date and relevant information.

**Patient preference:** Sarah may feel that her work is the priority in this instance and she may even present research evidence that contradicts the practice nurse.

**Outcome:** This situation is a complex one but raises common issues within the day-to-day working role of a health care professional. Developing a focused practice-based question would the health professional to search and appraise the evidence and obtain the appropriate answer for utilisation in practice. It is important that the practice nurse informs Sarah of the relevant evidence but also takes the Sarah preferences into consideration. Both should then agree a feasible plan of treatment with which they are happy.

(Adapted from CASP, 2002)

## The 'PICO' Framework

If a question is well designed then it is easier to find the evidence that will help to answer it. Alongside the 3 elements of evidence-based practice it is also important to consider the main factors of a practice-based question. Flemming (1998), Richardson et al (1995) and Sackett et al (1996) use the **PICO** acronym to describe the four main factors of a question as follows;

1. **Population:** the situation, population or person you are interested in (for example, elderly in-patients with problems of compliance with treatment);
2. **Intervention:** the intervention (e.g. a self-medication training package) you are interested in. This may not always be required depending on the type of question;
3. **Comparison:** the comparison is measured against the intervention (usually the current treatment). This is not always required, depending on the type of question;
4. **Outcome:** the outcome is the end point of interest.

**PICO** provides a useful framework when devising a practice-based question. Not every question will contain each of these factors - whilst there is always a 'population' and an 'outcome', there may be no 'intervention' or 'comparison'. Using the previous scenario, here is an example using the 'PICO' framework to develop a focused practice-based question;

**The practice nurse wants to know:** What's the best treatment for hand injuries?

This question is far too broad meaning that the search for evidence will result in far too many articles. It is more efficient to write a more focused question by breaking the situation down into its constituent parts, using the PICO headings as shown in the table;

### Framing the Question

Population	Intervention	Comparison	Outcome
<ul style="list-style-type: none"><li>• Adult Female</li><li>• Employed</li><li>• Mother</li><li>• Skin graft</li><li>• Hand Injury</li></ul>	<ul style="list-style-type: none"><li>• Frequent dressing changes</li></ul>	<ul style="list-style-type: none"><li>• Infrequent dressing changes</li></ul>	<ul style="list-style-type: none"><li>• Effective healing of the hand</li></ul>

(Adapted from CASP, 2002)

Using the headings and keywords the practice nurse can then develop a summary in the following way:

- **Population:** Female professional with hand injury that has had a skin graft
- **Intervention:** Frequent dressing changes
- **Comparison:** Infrequent dressing changes
- **Outcome:** Effective healing of the hand

This then allows the practice nurse to develop the following focused, practice-based question: ***In female professionals, with a hand injury that has undergone a skin graft repair, do frequent dressing changes compared to infrequent dressing changes, lead to effective healing of the hand?*** Using a focused question helps us remove irrelevant studies from our subsequent literature search quickly and efficiently.

The following two scenarios are further examples of developing focused practice-based questions.

**Scenario 1 - Example of a QUANTITATIVE question**

"A 10 year-old girl who has had open heart surgery has been very ill for two days, requiring artificial ventilation and a number of support drugs to maintain her blood pressure. The little girl has developed a small pressure sore (defined as constant discolouration of skin, or partial or full thickness skin loss) at the back of the head."

**The nurse wants to know:** How can I prevent further pressure sores?

This question is too broad to answer efficiently so it is appropriate to break the situation down using the PICO approach. More specific factors have to be determined before the nurse can have a focused answerable practice-based question.

**Framing the question:**

Population	Intervention	Comparison	Outcome
<ul style="list-style-type: none"> <li>• Age group - child</li> <li>• Cardiac surgery</li> <li>• Critically ill</li> <li>• Post-operative</li> </ul>	<ul style="list-style-type: none"> <li>• Constant low pressure beds.</li> </ul>	<ul style="list-style-type: none"> <li>• Method currently in use e.g. - high-specification foam mattresses</li> </ul>	<ul style="list-style-type: none"> <li>• Prevent further pressure sores</li> </ul>

**Summary:**

- **Population:** critically ill child
- **Intervention:** here the nurse primarily considers those solutions available to her, such as constant low pressure beds. If s/he were making a bid for new equipment, it would be appropriate to also include alternative solutions s/he may not have access to.
- **Comparison:** high specification foam mattresses
- **Outcome:** prevent further pressure sores

A more focused question can be written:

***In critically ill children, are constant low pressure beds more effective than high specification foam mattresses in preventing pressure sores?***

This is an example of a focused question on effectiveness of an intervention and would be used in quantitative research studies.

(adapted from Craig and Smyth, 2007, pp.33-36)

### Scenario 2- Example of a QUALITATIVE question

"A recent public health report shows that despite national initiatives to promote breast feeding, uptake is poor. A health visitor who works in a deprived inner city community and visits mothers from day 10 after delivery has noticed that many of the mothers feed their babies with infant formula rather than breast milk. The health visitor wants to gain better understanding of the factors that influence mothers to bottle feed with infant formula. This information may help to inform future educational programmes aimed at promoting breast feeding."

**The health visitor wants to know:** Why don't mothers breast feed?

This question is too broad to answer efficiently so it is appropriate to break the situation down using the PICO approach. More specific factors have to be determined before the health visitor can develop a focused, answerable practice-based question.

**Framing the question:**

Population	Intervention	Comparison	Outcome
<ul style="list-style-type: none"> <li>• Mothers</li> <li>• All ages</li> <li>• Deprived areas</li> <li>• Inner-city</li> <li>• Bottle feeding</li> <li>• Breast feeding</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul> <p>In this scenario, there is no intervention or comparison for this type of question - the health visitor wants to <u>understand</u> the views of the mothers <b>not</b> compare breast and bottle feeding.</p>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Improve understanding of mothers' values, beliefs &amp; attitudes relating to bottle and or breast feeding</li> </ul>

**Summary:**

- **Population:** mothers who live in deprived inner city areas
- **Intervention:** none
- **Comparison:** none
- **Outcome:** Understand those factors which influence mothers' choice of infant feeding.

A more focused question can be written:

***What are the factors identified by mothers who live in deprived inner city areas that influence them to breast feed or to bottle feed using infant milk formula?***

This is an example of a focused question about feelings, meanings and understandings and would be used in qualitative research studies. Practice-based questions which require qualitative research evidence often have no Intervention or Comparison in the PICO framework.

(adapted from Craig and Smyth, 2002, p36-37)

### A3 - Learning activity - Developing a practice-based question (1)

Follow the previous steps using the PICO framework to develop a practice-based question from the scenario below.

Martha is a 40 year old woman who has suffered from urinary incontinence following the birth of her fifth child. She has had numerous interventions to rectify the problem, all of which have been unsuccessful. She has now opted to have a long term in dwelling catheter. On her last visit to the urology out-patient clinic she complained that the catheter she currently uses is irritating and uncomfortable. She has read on the internet that there are other types of catheter which do not have the same problems associated with them. The nurse specialist at the clinic thinks that the catheter Martha is currently using is considered the best for the situation but wants to find current evidence to support this.

*The nurse wants to know:* Which catheters are best?

This question is far broad to answer efficiently so it is appropriate to break the situation down using the PICO approach. More specific factors have to be determined before the health visitor can develop a focused, answerable practice-based question.

Framing the question:

Population	Intervention	Comparison	Outcome

Summary of the points:

- **Population:**
- **Intervention:**
- **Comparison:**
- **Outcome:**

State your focused practice-based question:



#### A4 - Learning activity - Developing a practice-based question (2)

Follow the previous steps using the PICO framework to develop a practice-based question from the scenario below.

Decision-making in community settings is an individualised activity influenced by patient and family preferences, the patient's social circumstances and the resources that are available in the area. A researcher wanted to explore the nature of the knowledge that district nurses require in order to carry out first assessment visits and the relationship of that knowledge to the decisions the nurses made.

*The researcher wants to know:* What knowledge do district nurses require?

This question is too broad to answer efficiently so it is appropriate to break the situation down using the PICO approach. More specific factors have to be determined before the district nurse can develop a focused, answerable practice-based question.

**Framing the question:**

Population	Intervention	Comparison	Outcome

Summary of the points:

- **Population:**
- **Intervention:**
- **Comparison:**
- **Outcome:**

**State your focused practice-based question:**

(Adapted from Kennedy, 2002).

It is important to look for research evidence that is relevant and appropriate to your practice-based problem and question. Having identified a practice-based question we must now identify the appropriate perspective to provide the most valid and useful answers.

In the following section we will explore the 2 main research perspectives, which will guide you when identifying relevant research studies to help answer your practice-based question. Some questions require evidence from either the qualitative or the quantitative perspective whilst others can be most fully answered by drawing upon studies from each of these two principal research perspectives.

## In - text references: Development of a practice-based question

Cox, J.L., Holden, J.M., and Sagovsky, R. (1987). "Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale", *British Journal of Psychiatry*, Vol 150, p.782-786.

\*Critical Appraisal Skills Programme. (CASP) (2002) *Evidence-based health care*. CASP: Milton Keynes. (Book 2; Asking the question and finding the evidence).



Craig, J.V., and Smyth, R.L., Eds. (2002) *The Evidence-based practice manual*. Churchill Livingstone: Edinburgh.

\*Flemming, K. (1998) "Asking answerable questions", *Evidence-based Nursing*, Vol. 1 (1), pp. 36-37.

Kennedy, C. (2002) "The work of district nurses: first assessment visits", *Journal of Advanced Nursing*, Vol. 40 (6), pp. 710-720.

Richardson, W., Wilson, M., Nishikawa, J., and Hayward R.S. (1995) "The well-built clinical question: a key to evidence-based decisions" (editorial), *ACP Journal Club*, 123: A pp. 12-13.

Sackett, D., Rosenberg, W., Muir Gray, J., Haynes, B and Scott Richardson, W (1996) "Evidence-based medicine: what it is and what it isn't", *British Medical Journal*, Vol.312, pp.71-72

Teasdale, G. & Jennett, B. (1974) "Assessment of coma and impaired consciousness. A practical scale", *Lancet*, Vol 2, p.81-84.

Waterlow, J. (2009) *Pressure Ulcer Risk Assessment and Prevention : Understanding the causes*. [online]. Available from: <http://www.judy-waterlow.co.uk> [Accessed: 18<sup>th</sup> August, 2009]

---

### Directed Reading\*:

\*Bowling, A. (2002) *Research methods in health, 2<sup>nd</sup> ed.*, Buckingham: Open University Press. (Chapter 6).

\*Craig, J.V., and Smyth, R.L., Eds. (2007) *The Evidence-based practice manual*. Churchill Livingstone: Edinburgh. (Section 2, Chapter 2).

\*Parahoo, K. (2006) *Nursing research: principles, process and issues*. Palgrave MacMillan: Houndmills. (Chapter 9).

\*Rees, C. (2003) *An introduction to research for midwives. 2<sup>nd</sup> Ed.* Books for Midwives Press: Hale (Chapter 7).

\*Rycroft-Malone, J., Harvey, G., Seers, K., Kitson, A., McCormack, B. and Titchen, A. (2004) "An exploration of the factors that influence the implementation of evidence into practice", *Journal of Clinical Nursing*, Vol. 13 (8), pp. 913-924.

## Research Evidence: perspectives, designs and approaches

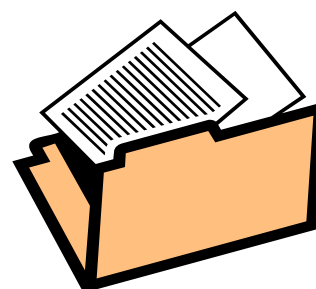
### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Understand the 2 main research perspectives and their key beliefs and assumptions.
- Explain key terms related to different types of research perspectives.
- Recognise and understand the main types of research design / approach associated with each research perspective.
- Describe several different quantitative designs and qualitative approaches.

### Fact File

Researchers may conduct their study using either a **QUANTITATIVE (positivism)** or **QUALITATIVE (naturalism)** perspective. Each of these makes very different assumptions about the way we can 'know about' the world around us. The research perspective adopted will depend largely upon the research question being asked, although other factors (researchers' beliefs, time, cost, expertise, resources) may also be influential.



### Critical Reading Tip

To be able to determine the most relevant research that will assist you to answer your practice-based question, it is important to understand the different perspectives and their relevance to research studies.

## Quantitative Research (Positivist Perspective)



Quantitative research gathers numerical data across large populations. It attempts to **measure variables** like demographics, behaviours, beliefs, interventions and outcomes and is concerned with generating large amounts of data which can be analysed using statistics. This approach is useful when, for example;

- assessing whether a new drug is better than existing treatments
- looking for a relationship between phenomena such as poverty and ill-health
- making a prediction between two variables such as binge drinking and breast cancer rates in young women.

In order to produce credible quantitative data it is necessary to collect information from a large sample of people, drawn from the wider population. By analysing these data using statistics, it is possible to make a statement i.e. binge drinking does or does not **significantly** contribute to an increased risk of breast cancer amongst young women in the UK.

Quantitative research is sometimes referred to as 'scientific' in approach and has an underlying framework of the philosophical approach called '**POSITIVISM**'. The **beliefs** and **assumptions** of positivism are as follows;

### 1. There is only one reality

'Reality exists; there is a real world driven by real natural causes' (Polit and Beck, 2006; p.14). Positivism argues that there is one reality that we all experience. It would argue that patients experience hospital in largely the same way, regardless of their specific illness, their age, their gender, the ward they are on or health authority the hospital is in. In positivism individual differences and life contexts are assumed to be 'evened out' by large sampling frames and/or randomisation of participants into study groups.

### 2. Objectivity

One must not be subjective (apply our personal feelings) about the topic under investigation. Any personal bias by the researcher must be avoided because it will exert an undesirable and inappropriate influence on the results.

### 3. Reductionist

Complex phenomena can be reduced into simple units that can be observed and understood as a whole, i.e. lung cancer = genetic factors + lifestyle carcinogen exposure

### 4. Deterministic

Phenomena don't just happen, there are factors involved in their development and existence. It is a belief in 'cause and effect' e.g. over eating (the cause) results in obesity (effect).

### 5. Deductivism (theory testing or confirming)

Hypotheses (theories) can be tested by gathering and examining data which will either support or reject them i.e. testing whether one type of treatment is better than another.

## Qualitative Research (Naturalistic Perspective)



Qualitative research is usually concerned with much smaller numbers of people and has a different focus from quantitative research. It has greater depth and is concerned with the attitudes, beliefs, experiences and behaviours of the people being studied in a much more **holistic way**.

If we look at the previous example of binge drinking and its effect on breast cancer taking qualitative approach, we would be interested in exploring the culture of binge drinking amongst this group, and their understanding of associated risk factors, rather than demonstrating a causal link between risk factors (binge drinking) and incidence rates (breast cancer).

Qualitative research has a focus on understanding and interpreting human behaviour within a natural setting (i.e. home, work, hospital ward, residential home). It has an underlying framework based upon the philosophical approach called '**NATURALISM**'. The **beliefs** and **assumptions** of naturalism are identified below:

### 1. Multiple realities

You can have many experiences of the same phenomenon e.g. the experience of being in hospital will be quite different for a nurse compared to that of a patient, relative etc. The context of an experience will have an important impact upon it.

### 2. Reflexive

The researcher is part of the research process and therefore needs to reflect on how they will influence the data and/or outcome of the study.

### 3. Ideological

Naturalism emphasises that research is always underpinned by a particular ideology or belief about the research (e.g. a study on women's experiences of childbirth may use an underlying *feminist approach*).

### 4. Holistic approach

Qualitative research studies a phenomena holistically. It is interested in the totality of the experience rather than specific set variables, like quantitative research. It therefore values participants' ability to bring new and unexpected findings to the research study. For example, though a quantitative study could explore the degree to which an analgesic reduces wrist pain in people with repetitive strain injury, a qualitative study would explore participants' experiences of managing wrist pain using the analgesic in their daily lives.

### 5. Inductivism

It is concerned with developing theory from observations of practice (this is the opposite of deductivism which starts with the theory then collects data to support or reject it). The research by Kubler-Ross (1997) on the experiences of people who are dying was developed in this inductive way. After intensive observation and research into this topic she produced a framework detailing the stages people go through from first being told they are dying to acceptance of their death. This has proved valuable for all health professionals as it helps us to understand and respond to the emotional needs of people who are dying. Modifications to the original theory have since been undertaken following further research, demonstrating the dynamic nature of theory development in research where the body of knowledge is continually expanding.

### A5 - Learning activity - Choosing the right approach for the research topic

- Place a tick under the approach you feel would be best to study these topics

Topic	<u>Qualitative</u> (Naturalist)	<u>Quantitative</u> (Positivist)
1. Incidence of caesarean births in Edinburgh		
2. Feelings and reactions from a person diagnosed with Parkinson's disease		
3. Analgesic requirements of men following prostatectomy		
4. Experiences of parents caring for children with terminal illness		

- Refer back to the PBQ developed in learning activities A3 & A4 and decide which research approach is most appropriate for each?

**A3 =**

**A4 =**

- Now develop **two** quantitative and **two** qualitative questions to address practice-based issues relating to the following four topics:
  - Sexual health and adolescents
  - Children with disabilities
  - Older people with dementia
  - Adults with terminal illness

**Example:** Does sexual health education in schools reduce subsequent sexually transmitted infection in 16 - 18 year olds? (Quantitative).

## Quantitative Designs And Qualitative Approaches

- There are various ways to conduct either quantitative or qualitative research. In quantitative research we talk about a research **DESIGN**, whilst in qualitative research the term **APPROACH**<sup>1</sup> is frequently used.
- The design/approach is simply the plan or blueprint the researcher uses to conduct their study - a bit like the care plan we create for patients. For example we might have some general care that is given to all surgical patients but the detailed plan would be different for someone having hernia repair surgery compared to someone having a heart transplant operation.
- The quantitative perspective has a menu of different research designs and qualitative research has various approaches, which would direct the specific way we undertake the research and can be used to answer different kinds of research question.
- We consider the main quantitative designs and qualitative approaches below. Students should find out more about each design/approach from the chapter(s) in their research textbook.

### Directed reading - Quantitative designs & Qualitative approaches

Now read this chapter about quantitative and qualitative perspectives: Topping A Chapter 11, The Qualitative-Quantitative Continuum, in Gerrish, K. & Lacey, A. (2006) eds. *The Research Process in Nursing* 5<sup>th</sup> edn Blackwell, Oxford. (on blackboard)

**OR**

select any other chapter from a research textbook that discusses different research perspectives.



## Quantitative research designs

### Experimental designs

- Randomised control trial (RCT)
- Quasi-experimental design

### Non experimental designs

- Survey
- Case Control Study
- Case Study\*
- Action Research\*
- Needs Assessment

These may also be either;

- Longitudinal
- Cohort
- Cross-sectional

\*may also use qualitative approach

## Experimental Designs

- Experimental research attempts to investigate cause and effect relationships between variables. i.e. Does the new drug *Brupadine* cause pain relief?
- It seeks to confirm or reject the effect of one variable upon another.
- Researchers introduce a variable (*Brupadine*) and measure its effect on a dependent variable (level of period pain) while ensuring that other variables (i.e. patients having a massage or taking other analgesics) don't confound the result.
- Because they allow researchers to control for all variables, they are the strongest form of design.

### Randomised Control Trial (RCT)

- The 'gold standard' experimental design is the RCT. This design requires;
  - **Manipulation** - the researcher changes the variable being tested - (i.e. researchers can decide whether patients get *Brupadine* or not).
  - **Two groups of participants**. The Experimental group receives the intervention (i.e. *Brupadine*) and the Control group does not (i.e. no *Brupadine*). The researchers ensure that there are no other differences between the groups.
  - **Randomisation** - Participants must be randomly assigned to either the experimental or control group, selection biases might arise between the two groups, confounding the experiment. Randomisation prevents this from happening.

Researchers then compare the two groups statistically to see if the variable (*Brupadine*) causes the theorised effect (pain relief) or not while holding all other variables constant.

### Quasi-Experimental Design

- Frequently researchers want to compare variables, where either;
  - Randomisation is impossible - e.g. when comparing men and women, researchers cannot randomly allocate a person to be male or female!
  - Manipulation is unethical - e.g. to compare the effect of mastectomy on women with stage 1 vs. stage 3 breast cancer, cannot wait until one group's cancer has developed sufficiently before starting treatment.
- In these situations, we must capitalise on naturally occurring groups, i.e. when a woman is diagnosed with stage 3 breast cancer, invite her to participate in the study.
- These are called 'Quasi-experimental' designs.
- They are not quite as strong as RCTs because the lack of randomisation introduces some error into the study.

## **Non-experimental Designs**

- Although extremely useful, they are generally weaker than experimental designs because it is not possible to measure all variables that may influence the study.

### **Survey design**

- The survey design is used when information is required from a large group of people.
- Presents a positivist world view therefore uses quantitative approach.
- They aim to measure actions, attitudes, knowledge, intentions, opinions, values and behaviours and to collect information as accurately and precisely as possible.
- Tools used to collect information include questionnaires and structured interviews.
- They obtain information about:
  - Prevalence of variables (how frequently something occurs).
  - Distribution of variables (how do certain characteristics cluster within a population i.e. what age groups are most likely to develop diabetes in Scotland?).
  - Interrelationships between variables (i.e. smoking rates and health promotion).

### **Case Control Study**

- A case-control study compares patients with a certain attribute (cases) with patients who do not have this attribute (controls). Cases are selected, then controls are selected who 'match' them on various characteristics (e.g. age, ethnicity etc.).
- For example, a case control study could be used to examine factors which influenced falls in hospitalised patients post stroke. Cases were stroke patients who did fall while in hospital, matched to controls who were stroke patients who did not fall while in hospital. Controls would be matched on factors such as age, gender, mobility problems etc. Subsequently, researchers would assess which other factors were related to the falls (number of nurses on shift, time of fall etc.).
- Case control studies may therefore be useful when ethical or practical issues prevent an RCT.

### **Case Study**

- A case study is an in-depth examination of a single case (though the case may be a single person, group or situation), often using different methods of enquiry to highlight a particular issue.
- In contrast to a survey, a case study usually examines far fewer people but in greater depth.
- It can be used in quantitative and qualitative perspectives.

### **Action Research**

- Here, the researcher's aim is to solve practice-based problems using research methods.
- They plan and implement the most appropriate change informed by their research and subsequently evaluate the outcome.
- Action research can be used in quantitative and qualitative perspectives.

### **Needs Assessment**

- A needs assessment is a means to determine the specific requirements of a given population of service users.
- It is frequently quite specific to the target group and service where it is conducted.

## Types of Experimental and Non-Experimental Designs

The experimental and non-experimental designs described previously may be either one off 'snapshot' studies (Cross-sectional study) or occur over a period of time (longitudinal and cohort studies). These are described below;

### Longitudinal study

- Data are gathered at more than one point in time. E.g. women on HRT are studied at 6 monthly intervals over a 5 year period to determine the effect of HRT on incidence of heart disease.
- Does not need to include the same people at each survey point, as long as it recruits participants from the same population.
- Analyse cause and effect relationships (if repeated at another time or area will it give similar or different results).

### Cohort study

- The same as a longitudinal study except it follows the same group of people (a 'cohort') over a long period of time, to measure changes over time.
- More powerful than a longitudinal study because it follow the same people over time.
- Problem with participant 'drop out' as the study period increases, may result in very few participants remaining in the study. Recruiting more participants weakens the design.

### Cross-sectional study

- Takes a 'snap shot' of different facets of a population at one point in time.
- Compares groups who are at different stages of their experience of a phenomenon.
- May study associations between variables or trends (such as differences in problem solving ability across the life course).
- Quicker than longitudinal or cohort studies but compares different groups and may rely on recalled data (which are subject to forgetting the further back you go).

## Prospective and Retrospective Data

Lastly, across all of these designs, data may be collected forwards as they move through time, or be based on participant's recall of past events. These are described below;

### Prospective Data

- Data collected as (or just after) participants experience the event are called 'prospective'.
- RCTs, Quasi-Experimental designs, Case studies, Case-control studies, Needs assessment, Cohort and Longitudinal designs usually collect prospective data.
- Although these data may take a long time to collect, we may ask detailed questions and get a high quality of response as forgetting is unlikely to be a problem.

### Retrospective Data

- Data which are based on participants' recall of past events are called 'retrospective'.
- Survey and cross-sectional designs usually rely on retrospective data.
- Although these data are quick to collect (we can ask people about their past behaviour), they produce poorer quality data as they are subject to forgetting.

### **A6 - Learning activity - Using survey design in practice**

Consider your own area of practice or a recent clinical placement. Imagine you are going to conduct a survey. What types of information would it be useful to gather about the client group or staff who work there using the survey design? Now give an example under each of the 2 types.

Cross-sectional Study

Longitudinal Study

## Qualitative Research Approaches

<p><b>Descriptive/Exploratory Approach:</b></p> <ul style="list-style-type: none"> <li>• A general qualitative technique used to describe or explore a topic</li> </ul>	<p><b>Interpretive Approaches:</b>            These fall into 3 main types  <i>Ethnography</i> - Anthropological origin  <i>Phenomenology</i> - Philosophical origin  <i>Grounded theory</i> - Sociological origin</p>
---	--

### Descriptive/Exploratory Approach

- General qualitative approach which is popular within health care research.
- Does not follow a specific design such as phenomenology, grounded theory or ethnography. Instead it follows the general principals of qualitative research (Multiple realities etc.) as described earlier within the workbook.
- Used to explore what is happening within a situation from a personal perspective i.e. how people feel about a stroke service within primary care setting.
- Data are gathered through interviews or focus groups, normally using a small sample size to explore individual's beliefs and understandings of a situation.
- Themes are generated and reported from the data.
- A descriptive/exploratory approach may be used in a baseline study on a topic where there is little existing information such as the introduction of a new role within a clinical area. The findings from this study may then be used to conduct a larger survey on new roles across an NHS Board.
- It may also be attractive to researchers who are interested in producing some useable research but do not want to try to artificially 'pigeon hole' their work into one of the interpretative approaches.

### **Ethnographic Approach**

- Presents a naturalistic world view therefore uses qualitative approach.
- Seeks to understand, describe or learn about cultures for example, a nurse may wish to observe a group of elderly people in residential care in order to understand their experiences of living in this environment.
- Wants to learn the world views of the cultural group as they define them. An example might be a lecturer wishing to understand more fully the culture of nursing students in higher education.
- The underlying assumption of ethnography is that every human group eventually evolves a culture that guides the members' view of the world and the way they structure their experiences.
- These may be broad studies of complex societies (macro ethnography for example, all midwifery students in Scotland), or narrowly defined cultures (micro ethnography for example, midwifery students in year 3 of their programme within Glasgow Caledonian University).
- Strives to reveal the 'tacit knowledge' of a culture. Tacit knowledge is knowledge that is so embedded in a culture that it isn't talked about by the members nor are they even consciously aware of its existence. People's fascination with tacit knowledge has underpinned the popularity of reality TV for example, the 'Big Brother' approach shows that by observing people in great detail you can identify in-depth information about their behaviour and group culture.
- In ethnography the researcher can offer two different perspectives of a culture.
  - Emic perspective, the insider's view where the researcher 'goes native' and joins the group as a member for example, a lecturer studying a group of student nurses would actually join the class as a student.
  - Etic perspective, the outsider's view where the researcher studies the group as a non-member for example, the lecturer would remain as a lecturer and study the class from a more distant perspective.
- In nursing this approach provides valuable information which helps us to understand better the beliefs, behaviours and experiences of staff and patients.
- Tools used to collect information include observations, semi & unstructured interviews, records, charts and other physical evidence (photos, diaries and letters.)

### **A7 - Learning activity - Different cultures**

We all belong to different cultural groups. As students you are likely to have a different set of behaviours and experiences from those you have in a work setting. Take a couple of minutes to identify the different types of characteristics, behaviours or experiences you think people are likely to have within these 2 settings.

**Studying on a nursing programme (GCU)**

**Working in a practice area**

**Homeless adolescent**

**Adolescent living at home**

## Phenomenological Approach

- Phenomenology draws on philosophy and psychology.
- Phenomenological studies are interested in finding out how participants understand the world around them.
- They focus on learning the participant's own understandings.
- Phenomenology is particularly useful to examine people's experiences of illness and the care they receive.
- For example, a phenomenological study might investigate the impact that receiving a diagnosis of Type II diabetes has on Scottish adults in their 60's and 70's.
- Data are primarily collected through semi-structured and unstructured interviews where researchers attempt to examine assumptions and 'taken for granted' explanations.
- Researchers must 'bracket' (ignore) their own thoughts and feelings about the phenomena under study and instead prioritise participants' understandings and explanations.
- Data are searched for recurrent 'themes' and often backed-up in research reports using 'verbatim quotes' (i.e. the participants' actual words).

## Grounded theory (GT)

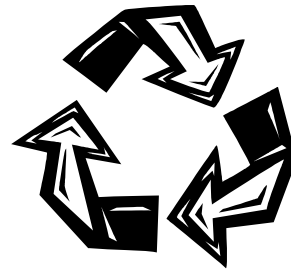
- Grounded theory is a qualitative approach derived from the discipline of sociology by Glaser and Strauss (1967).
- The aim of GT is to develop a new theory that is 'grounded' in the data collected, in order to describe and explain behaviour as the participants understand it.
- The new theory tries to provide an explanation of events or interactions.
- Grounded theorists argue that the data should be collected before theory is developed, and thus the literature review is not conducted until after data collection. (This contrasts to most other qualitative approaches, and all quantitative research, where literature review precedes data collection.)
- The researcher attempts to ignore their own preconceptions and interests throughout, so that these do not distort the findings.
- Data are usually collected in GT by semi-structured or unstructured interviews.
- Sampling generally starts with a purposive sample of individuals from whom data are collected.



- Initial data are analysed to identify emerging concepts and theories.
- Researchers then recruit specific participants whose knowledge and experiences will help them develop the emerging theory. This is called 'theoretical sampling'.
- Therefore, data collection and analysis occur together. This is called 'constant comparison analysis' and means that data from each interview are 'coded' immediately so that comparisons can be made with data from subsequent interviews. (This is rather unique to GT, as other designs/approaches begin analysis after data collection).

## Mixing Methods and Triangulation

Increasingly both qualitative and quantitative approaches are found within the same study, which can also be called **mixed-method or triangulation** (see Parahoo, 2006; Ch.5). By viewing a problem from more than one perspective, a broader range of data can be collected. This provides researchers with a deeper understanding of the problem as seen from different angles.



### Critical reading tip:

You may judge the rigour or robustness of a research study by determining:-

- If the research design/approach fits within the type of underlying research perspective i.e. qualitative or quantitative.
- If the research perspective and design/approach are appropriate for the aim of the study i.e. is it a study of cultures, experience or understandings (qualitative) or is the focus on measuring or comparing behaviours, prevalence, knowledge etc (quantitative)?

If the design / approach are compatible with the underlying research perspective then this will strengthen the study. The terms used to describe this aspect of quality are, enhancing the validity (quantitative studies) or credibility (qualitative studies).

#### **A8 - Learning activity - Research perspective and design / approach**

- Now read the article by Lou, et al, (2007) and answer the following questions.
1. What is the underlying research perspective used?
  2. What is the research design/approach. Is it appropriate for the underlying perspective?
  3. How did the authors show the perspective(s) was appropriate for their study?

#### **In - text references: Research Evidence: perspectives, designs & approaches**

Glaser, B. and Strauss, A.L. (1967) *The discovery of grounded theory: Strategies for qualitative research*. Aldine: Chicago



Kubler-Ross E. (1997) *On Death and Dying. What the Dying Have to Teach Doctors, Nurses, Clergy, and Their Own Families*, reprint ed., Simon & Schuster: New York.

\*Polit, D.F. and Beck C.T. (2006) *Essentials of Nursing Research - Methods, Appraisal and Utilization*, 6<sup>th</sup> ed. Lippincott, Williams & Wilkins: London (Part 3)

---

#### **Further Reading and \*Directed Reading**

\*Cluett, E.R., and Bluff, R. eds. (2006) *Principles and practice of research in midwifery*. 2<sup>nd</sup> ed. Baillière Tindall: Edinburgh. (pages 16- 24 and Chapters 3 - 8).

Holloway. I. Wheeler, S. (2002) *Qualitative Research in Nursing*. 2<sup>nd</sup> edn. Blackwell, Oxford

Lou, M.-F., Dai Y.-T., Huang, G.-S., Yu, P.,-J (2007) Nutritional status and health outcomes for older people with dementia living in institutions *Journal of Advanced Nursing* 60(5), 470-477

\*Parahoo, K. (2006) *Nursing research: principles, process and issues*. Palgrave MacMillan: Houndmills. (Chapters 3, 4, 5, 10).

Ploeg, J. (1999) "Identifying the best research design to fit the question. Part 2: qualitative designs", *Evidence-based Nursing*, Vol. 2 (2), pp. 36-37.

\*Rees, C. (2003) *An introduction to research for midwives*. 2<sup>nd</sup> Ed. Books for Midwives Press: Hale (Chapters 3, 4, 9, 12).

## Searching for evidence to answer practice-based questions

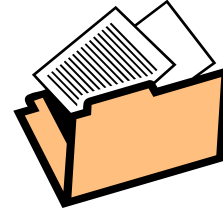
### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Identify sources of evidence for health care practice.
- Identify the type of evidence that is obtained from different sources.

### Fact File

**Health care knowledge is dynamic.** If knowledge does not develop, then practice will never change. Historically, health care practitioners sought knowledge to guide practice mainly from textbooks, but even today this source of information becomes quickly outdated.



**Today we talk of the information highway,** a route which has many lanes, with multiple sources feeding in and out of it. This provides a useful analogy for the situation which many nurses face in determining the most appropriate and up-to-date knowledge and information on which to base their practice.

**Health care professionals use knowledge derived from both the 'pure' (natural) sciences, and from the social sciences.** 'Pure' sciences include physics, chemistry, biology, pharmacology, pathology, microbiology and many others. This knowledge has been developed through the scientific method, and underpins many aspects of nurses' professional expertise. The social sciences include psychology, sociology, anthropology, economics and education, all of which underpin many aspects of practice.

**Health care practitioners require knowledge and information to inform most areas of their practice.** Finding the appropriate information depends on its source. Information for practice comes from a variety of sources each with its own strengths and weaknesses. This section provides an overview of the sources for evidence that will inform practice.

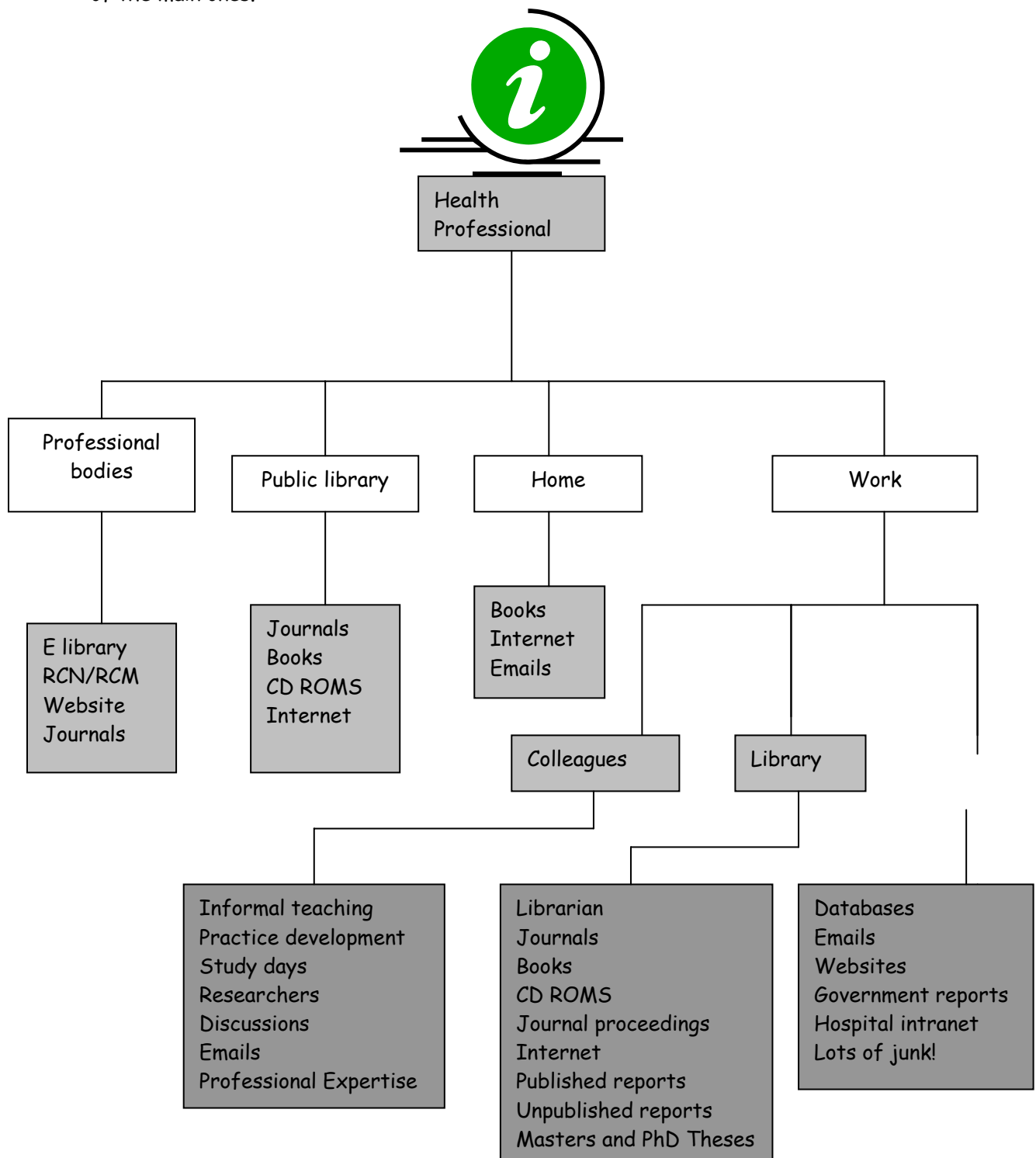
**It is your professional responsibility to know how to access current health care evidence.** The 'knowledge' you have today may be outdated by next year, so it is vital to develop good information retrieval skills and to be aware of new developments in your field.

**A clear search strategy will help you find the right type of information you need in practice.** This includes specifying what you want to know, deciding where you should look, accessing and selecting the appropriate information required, and appraising its quality.

**Internet-based sources of information vary widely** in their quality and may change rapidly. Internet addresses and links to web pages alter frequently, so you need to develop skills to access sites if you do not have the exact reference.

### Information sources network

All health care professionals have numerous sources from where to collect their evidence for practice. The following flow chart demonstrates the information network available. This is not an exhaustive list of all available sources but a guide to inform you of the main ones.



## Searching for the evidence

There are numerous sources of information that provide evidence for practice. The important thing is not just getting the evidence but knowing where the most appropriate source is to find it. Dawes et al (2005) highlight these main points that have to be taken into consideration when sourcing the evidence:

- Create a focused question that will inform the search.
- Recognise the type of question being asked.
- Identify the sort of information that would yield the best evidence to answer your question.
- Know what type of research study is the most appropriate to give you that information.
- Identify the main resources that would give you this information.
- Develop good search strategy skills to access these resources.
- Evaluate the evidence discovered and its relevance to answering your question.

### Directed reading - Where to look for best evidence

Read the Evidence Based Nursing notebook article by McKibbin and Marks (1998) on searching for best evidence, which provides useful pointers on where to search for literature:-

\*McKibbin, K.A., and Marks, S. (1998) "Searching for the best evidence. Part 1: Where to look", *Evidence-based Nursing*, Vol.1 (3), pp. 68-70.

## Main sources for accessing evidence for practice

### Textbooks:

Textbooks are a relevant source from which to glean some forms of information e.g. anatomy and physiology and some questions can be answered from these books alone. However it is important to remember that the information in the book will be at least two years old by the time that they are published so the most up-to-date information may not be retrieved from here. Textbooks could be used along with other sources for referencing and backing up evidence.

### Journals:

These are a good resource for up-to-date research publications. Journals also help networking and the sharing of information between professionals. When reading and accessing journals it is good to know the following points:

- Is the research paper from a peer reviewed journal? This is where experienced professionals have reviewed the paper prior to its publication to ensure that the research is rigorous. If it is peer reviewed this adds credibility to the research. Some journals allow authors to publish their work therein for a fee - how do you think this affects the credibility of the research?!
- Is the journal published nationally or internationally? International journals may be more prestigious than national level ones. However, the evidence within International journals may come from different countries and therefore may not be relevant to UK care settings.
- Does the journal report primary qualitative and/or quantitative research or does it mainly consider professional issues and discuss these situations?

### **The Internet:**

The internet is a good resource for accessing evidence for practice but when reviewing web sites it is important to do so with caution. Although the internet provides a wealth of information, it is important to establish where that information has come from. Doing a general search on the internet can yield copious amounts of irrelevant information which then takes time to sift through. This is why generic search engines like 'Google' are not recommended when searching for evidence for practice.

However, some internet search engines only retrieve scholarly information and so might be useful e.g.

- BUBL Link Catalogue ([www.bubl.ac.uk/link](http://www.bubl.ac.uk/link)) - selected internet resources covering all academic areas.
- Intute (<http://www.intute.ac.uk/>) provides a database of internet resources, selected and evaluated by subject specialists, each accompanied by a high quality description.
- Google Scholar ([www.scholar.google.com](http://www.scholar.google.com)) retrieves particular academic papers or articles.


**Be aware when using these sites that there might be limitations to the literature that is on them!**

### **Academic Databases:**

Academic databases are currently the most efficient methods of searching listed journals that your university or hospital subscribe to. We recommend that you use these resources in your search for evidence in the first instance, as they are the most comprehensive means to access high quality material. Some of the main databases that are used for the nursing, midwifery and allied professionals are:

- CINAHL (Cumulative Index To Nursing And Allied Health Literature)
- Medline
- BNI (British Nursing Index)
- AMED (Allied and Complementary medicine)
- OVID

We describe how to conduct an efficient database search on page 51.

Specific information on these databases and how to access them is available from Glasgow Caledonian University Library (<http://www.gcu.ac.uk/library/index.html>), by clicking on the A to Z database link on the right hand side. Within the A to Z of databases, most databases have short  guides, accessed by clicking the blue question mark icon.

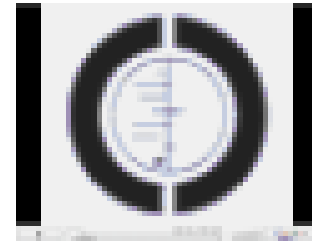
There are also a range of tutorials to help with accessing information at in Glasgow Caledonian University library at [www.gcu.ac.uk/library/findinginfo/health/index2.html](http://www.gcu.ac.uk/library/findinginfo/health/index2.html)

There is an Athens help page at [www.gcu.ac.uk/library/findinginfo/journals/athens.html](http://www.gcu.ac.uk/library/findinginfo/journals/athens.html) and general information can be found on the library FAQs page [www.gcu.ac.uk/library/about/FAQ.html](http://www.gcu.ac.uk/library/about/FAQ.html)

**Cochrane Library:** [www.thecochranelibrary.com](http://www.thecochranelibrary.com)

The Cochrane library is a valuable resource which provides access to complete systematic reviews online, via a searchable database. Systematic reviews are very useful as they provide a critical review of all information available on a very focused issue, based on a clearly defined review criteria. They are particularly useful to healthcare practitioners as they review a wide range of evidence in relation to the issue of interest. Although the majority of the information in the Cochrane Library relates to randomised controlled trials, reviews of qualitative studies were introduced in 2004.

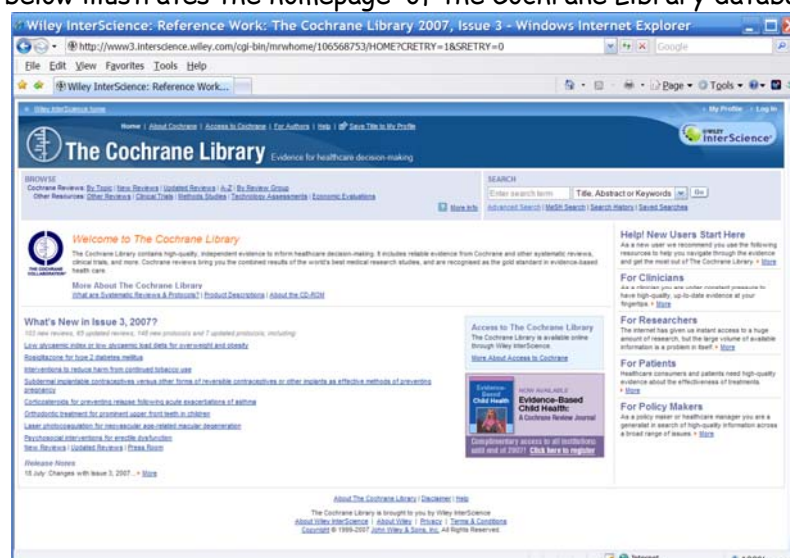
Open the <http://www.cochrane.org/index.htm> and click on the 'Cochrane Video: Click to Play' link or the picture of the woman, as shown in the right to find out about the aim of the Cochrane Reviews.



Each Cochrane Review starts with an abstract which provides a useful summary of the main findings of the review. The plain language summary that accompanies each review is intended for patients and non-professionals. As practitioners, the abstract / plain language summary alone is **not** sufficient for our Evidence Based Practice - we need to read the whole review.

Cochrane Reviews should be considered the 'gold standard' of current knowledge about a particular topic. This is why they are so important. If you can find a recent Cochrane Review that directly answers a practice-based question, then this is sufficient evidence. However, a disadvantage is that, although there are almost 5,000 cochrane reviews completed, they can be quite specific so there may not be a review that quite matches a particular question. Also remember that, like all research evidence, Cochrane Reviews conducted many years ago may no longer be relevant.

The picture below illustrates the homepage of the Cochrane Library database online.



Reproduced with kind permission from 'The Cochrane Collaboration' and © The Cochrane Collaboration 2007.



### Government policy documents – national / international websites:

For some questions you might require access to government reports or policy documents. These can be found via a 'publications' link on the relevant organisations' homepage. They are also useful places to find national and international 'strategy' documents (these are the 'plan of action' to address a particular issue at a national/international level).

- Scottish Government ([www.scotland.gov.uk/home](http://www.scotland.gov.uk/home) )
- Scotland's Health on the Web ([www.show.scot.nhs.uk/](http://www.show.scot.nhs.uk/))
- WHO - World Health Organisation ([www.who.int/en](http://www.who.int/en))
- Department of Health ([www.dh.gov.uk/Home/fs/en](http://www.dh.gov.uk/Home/fs/en) )

The picture below illustrates the homepage of 'Scotland's Health on the web' accessed online. The publications link is on the left hand side bar.



Reproduced with kind permission from 'Scotland's health on the web' and © Scotland's health on the web 2008.



### Local policy documents websites:

These are useful if you are looking for information closer to home. As well as providing local links, these sites allow you to access health policies which are relevant to the community where you work. Most policies have been developed through a process of consultation with experts and public bodies and are often adapted to suit the local context.

- Glasgow Health Information ([www.ghi.org.uk](http://www.ghi.org.uk))

### Professional Guidelines:

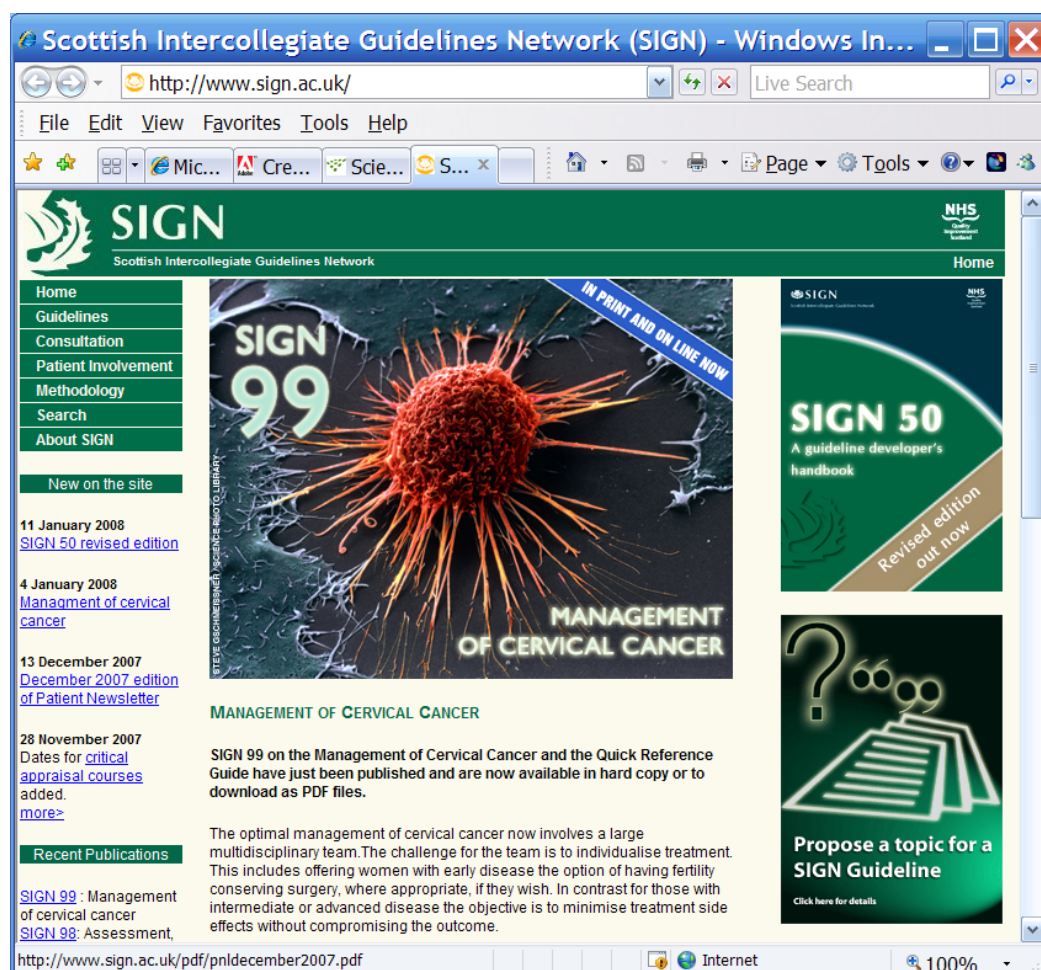
These sites help keep us informed of the changing guidelines within clinical areas. These sites have the latest recommendations on evidence-based clinical guidelines to help improve and unify patient care. The guidelines have recommended dates for continuous updating.

SIGN - Scottish Intercollegiate Guidelines Network ([www.sign.ac.uk](http://www.sign.ac.uk))

NICE - The National Institute For Health and Clinical Excellence ([www.nice.org.uk](http://www.nice.org.uk))

NHS Quality Improvement Scotland provides standards and best practice statements regarding health care ([www.nhsquality.org/nhsqis](http://www.nhsquality.org/nhsqis))

The picture below illustrates the homepage of the 'Scottish Intercollegiate Guidelines Network' (SIGN) when accessed online.



Reproduced with kind permission from 'Scottish Intercollegiate Guidelines Network' © Scotland's Health on the web 2008.

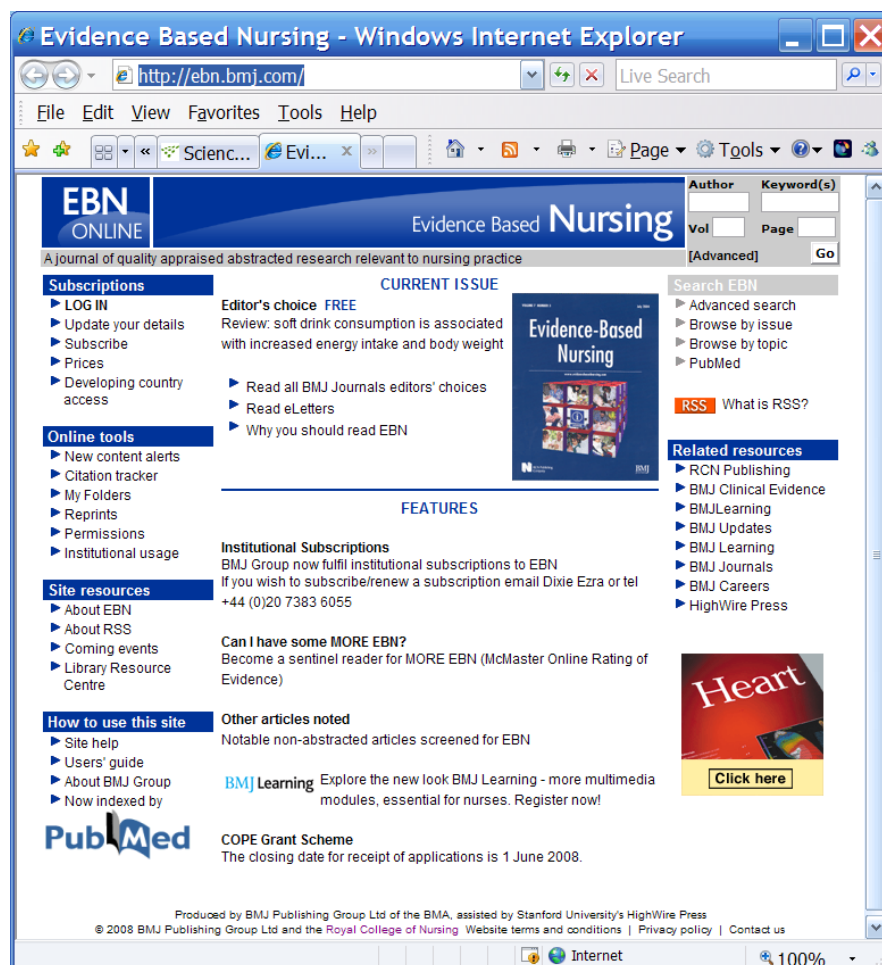
### Evidence-Based Journal sites:

Evidence-based journals strive to identify and appraise high quality relevant clinical research. Each has its own specific topic areas. The journal website will allow you to search for articles published in the journal and will provide you with the title, abstract and authors for free. However, it is only possible to access the full text of the article if Glasgow Caledonian University library subscribes to a particular journal.

The following are a sample of evidence-based journals taken by Glasgow Caledonian University library.

- Evidence-Based Nursing (<http://ebn.bmj.com/>)  
Familiarisation with this online journal will assist you in many aspects of understanding evidence based practice. It is recommended that you use this site.
- Evidence-Based Obstetrics and Gynaecology ([www.harcourt-international.com/journals/ebog/](http://www.harcourt-international.com/journals/ebog/))
- Effective Health Care Bulletins ([www.york.ac.uk/inst/crd/ehcb.htm](http://www.york.ac.uk/inst/crd/ehcb.htm))
- Evidence based healthcare and public health ([www.harcourt-international.com/journals/ebhc/](http://www.harcourt-international.com/journals/ebhc/))
- Evidence based Healthcare ([www.sciencedirect.com/science/journal/14629410](http://www.sciencedirect.com/science/journal/14629410))

The picture below illustrates the homepage of 'Evidence Based Nursing' and this is the view when you access it online.

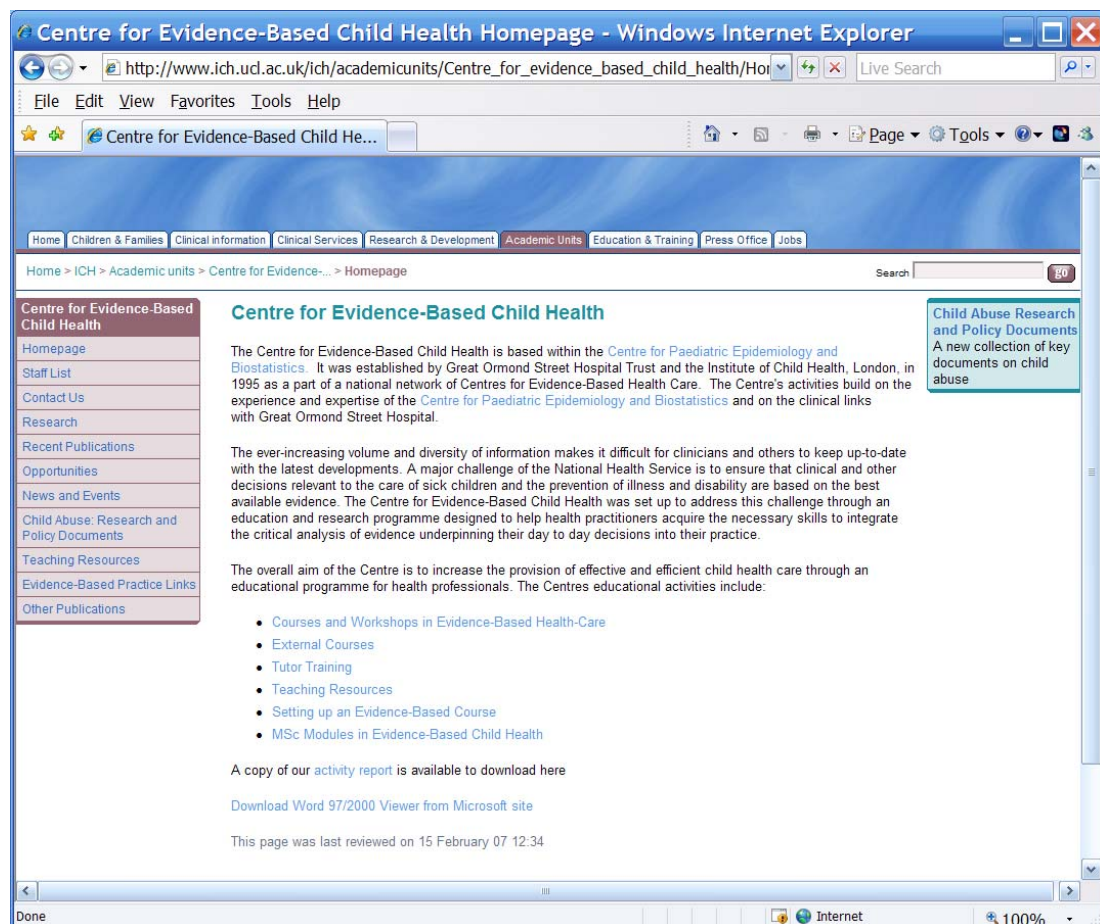


Reproduced with permission from the 'BMJ Publishing Group' © BMJ Publishing Group 2008

### Research Units and Centers:

Various British and International research centers specialise in particular aspects of evidence based health. The aim of these units is to promote evidence based healthcare practice and to develop, evaluate and disseminate improved methods of using research in practice. In the UK, these include;

- Centre for Evidence-Based Child Health  
([www.ich.ucl.ac.uk/ich/academicunits/Centre\\_for\\_evidence\\_based\\_child\\_health/Homepage](http://www.ich.ucl.ac.uk/ich/academicunits/Centre_for_evidence_based_child_health/Homepage))
- Centre for Evidence-Based Mental Health ([www.cebmh.com](http://www.cebmh.com))
- Centre for Evidence Based Nursing  
([www.york.ac.uk/healthsciences/centres/evidence/cebn.htm](http://www.york.ac.uk/healthsciences/centres/evidence/cebn.htm))
- Center for Evidence Based Medicine ([www.cebm.net](http://www.cebm.net))



- Reproduced with permission of the Centre for Evidence-Based Child Health © Centre for Evidence-Based Child Health 2008.

FOR AN ADDITIONAL LIST OF USEFUL WEB ADDRESSES SEE APPENDIX 3.

## Searching For The Evidence

Although all databases have different search methods, the main principles are the same. The first step is to develop a focused, practice-based question and from that question use the keywords to conduct your search. The following section demonstrates the processes involved in searching databases and websites.

### Search strategy for databases

One of the earlier scenarios will be used to demonstrate the formation of a practice-based question and the process of the search strategy. The scenario simulates a practice-based problem.

1. Scenario:

A 10 year-old girl who has had open heart surgery has been very ill for two days, requiring artificial ventilation and a number of support drugs to maintain her blood pressure. The little girl has developed a small pressure sore at the back of the head. (Craig and Smyth, 2007, pp.33-36)

2. From this scenario a practice-based question can be formulated using the PICO framework discussed in the previous section of this book.

In critically ill children, are constant low pressure beds more effective than high specification foam mattresses in preventing pressure sores?

(Craig and Smyth, 2007, pp.33-36)

3. Once the question has been developed, it is time to search for the evidence. When searching for evidence the PICO framework is a useful tool. Use the key words that you developed through brainstorming as search terms. It is important to consider American spellings and abbreviations when using words for searching. If any of these variations are missed then vital evidence may not be found. Using 'wild cards' and 'truncation symbols' to abbreviate words or replace letter(s) may also be used. Help sections of individual databases (as well as the library online tutorial) will inform you how to use 'wild cards' and 'truncation symbols'.

### Search strategy using PICO:

Key words - remember to use 'wild cards' and 'truncation symbols' to enhance your search  
e.g. child\$

Population		Intervention	Comparison	Outcome
Child	Critically ill	Constant low pressure bed.	Method currently in use e.g. high-specification foam beds.	Prevent further pressure sores. Wound healing
Cardiac surgery	Pressure sore			
Post-operative	Skin excoriation			

(Craig and Smyth, 2007, pp.33-36)

4. **Combine** your keywords to reduce the number of 'hits' your search obtains. For example, searching for the term 'child' will result in thousands of hits, but 'child' + 'pressure sore' will result in a much more manageable number.

5. Most databases also allow you to **specify various limits** within your search. Specify a date limit to your search, to avoid obtaining out of date evidence. Specify 'English language only' if you cannot speak other languages. Sometimes, other limits are available, e.g. 'participant gender', 'human participants only' etc. The more specific your search, the more efficient it will be.
  - **However be careful – the more specific you are, the fewer hits you will obtain BUT the greater the chance that you will miss out on potentially useful information.**
6. When you have obtained a manageable number of articles, you need to perform a hand search to determine the most appropriate papers to read.
  - Firstly, read the title to determine whether the paper is likely to be relevant or not. Exclude articles which are definitely irrelevant.
  - Next, read the abstract of those articles which seem relevant and those whose relevance could not be determined from the title alone. Discard articles which are definitely irrelevant.
  - Finally, obtain copies of the full article of those that remain. To improve efficiency, skim read each of these articles to check they are relevant to your question before reading them in detail.

This search strategy using the 'PICO' framework is further explained in Craig & Smyth, 2007; chapter 3.  
Holland & Rees (2010) ; Chapter 6 also discusses effective literature searching.

### **Search strategy for websites**

When searching a website you might use the 'PICO' approach to put in the key words; in some sites you might be able to use sentences or even your whole question, depending on the search engine within the site. If you are looking for policy documents then it would be appropriate to key in the title of that document. If you are unsure about the exact title of the document you require, it may be listed in the publications section of that site. It is worthwhile browsing websites to help you become familiar with them.

### A9 - Learning activity - Identifying key words

Sue Glen, a community nurse works with the elderly at her community centre. She has noticed that many of them have an increasing number of nutritional problems. She has been awarded a mini project grant to conduct a study on the dietary needs of the elderly. She is about to undertake a review of the existing literature.



1. Identify 4 keywords which she could use to guide her search. Fill them in the table on the following page.

2. Use the library website to choose a database. Fill it in the table below. Enter each of your 4 keywords and make a note of the number of hits you obtain for each one in the table.

3. Now set some **limits** (date, language, other options?) to your search, and repeat the search with your four keywords. Fill in the limits you set, and the number of hits after limits were set in the table.

- Did these limits help reduce the number of hits?

Database Chosen:

Limits Set

Keywords	Number of Hits	Hits after Limits set
1.		
2.		
3.		
4.		

4. Now perform a search using a combination of your keywords with and without limits set.

Keyword Combinations	Number of Hits	Hits after Limits set
1.		
2.		
3.		
4.		

5. How did combining keywords and setting limits help to make your search more efficient?



### In - text references: Searching for evidence to answer practice-based questions

\*Craig, J.V., and Smyth, R.L., Eds. (2007) *The Evidence-based practice manual*: Churchill Livingstone: Edinburgh. (Chapter 3)

\*Dawes, M., Davies, P., Gray, A., Mant, J., Seers, K., Snowball, R., eds. (2005) *Evidence-based practice: a primer for health care professionals*. 2<sup>nd</sup> ed. Churchill Livingstone: Edinburgh. (Chapter 3).



---

#### \*Directed Reading and Further Reading

Critical Appraisal Skills Programme. (CASP) (2002) *Evidence-based health care*. CASP: Milton Keynes. (Book 2: Asking the question and finding the evidence.)

\*Hamer, S. and Collinson, G., eds. (2005) *Achieving evidence-based practice: a handbook for practitioners*, 2<sup>nd</sup> ed., Baillière Tindall: Edinburgh. (Chapters 2 & 4).

\*Holland K., Rees C., (2010) *Nursing: Evidence Based Practice Skills*, Oxford, Oxford Chapter 6

\*McKibbin, K.A., and Marks, S. (1998) "Searching for the best evidence. Part 1: Where to look", *Evidence-based Nursing*, Vol.1 (3), pp. 68-70.

\*Thompson, C. and Dowding, D. (2002) *Clinical decision making and judgement in nursing*, Churchill Livingstone: Edinburgh. (Chapters 6 & 7).

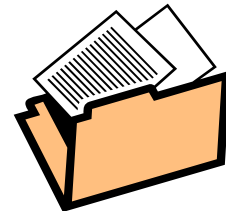
## Evidence-based practice and the research loop

### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Define the key stages of the research process.
- Identify the main elements of these stages.
- Discuss the relevance of practice-based questions to the research process.

### Fact File



### The research loop

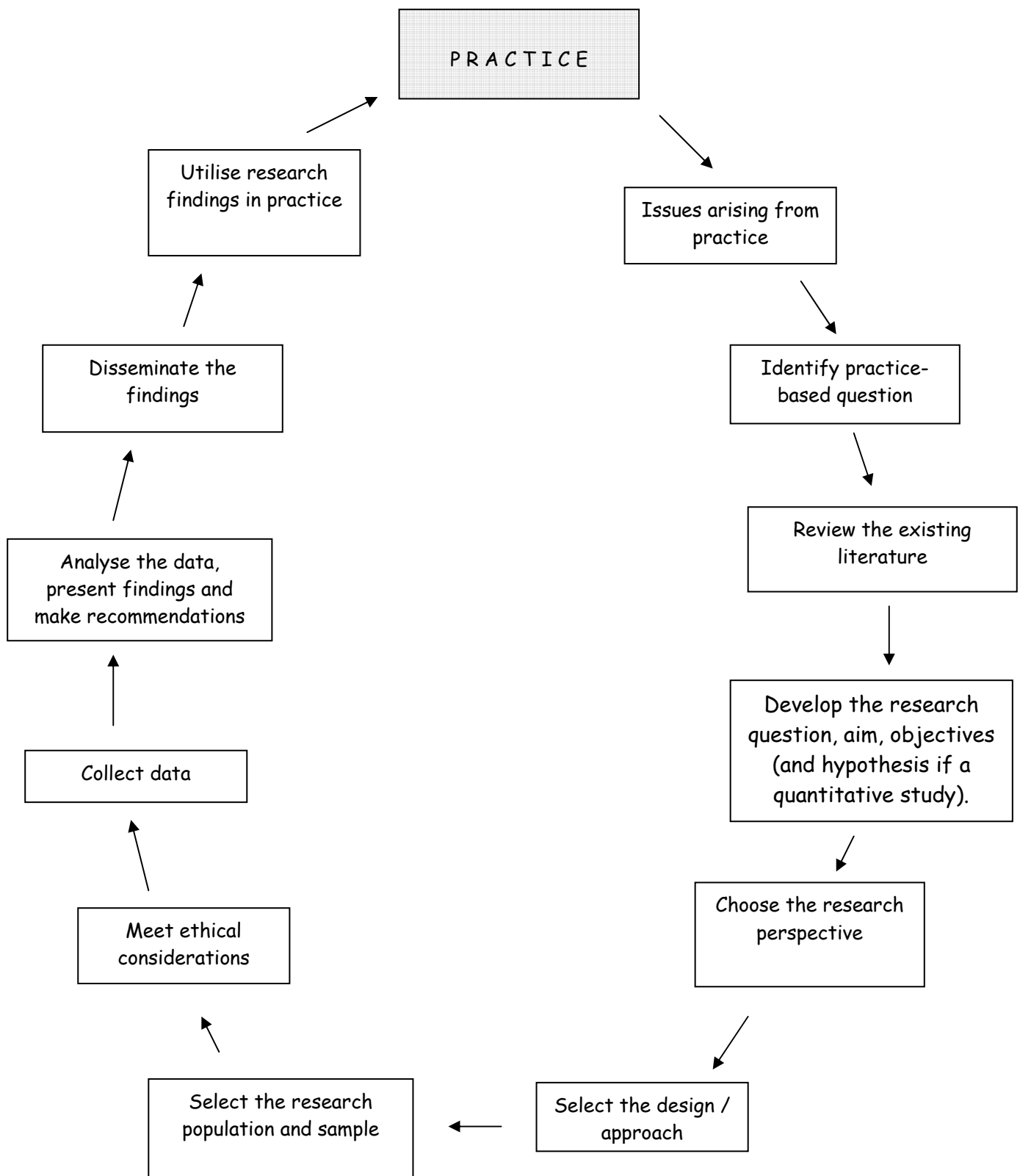
- Good quality research evidence is required for evidence-based practice. This requires that rigorous studies are conducted and published to develop the wider body of evidence. Nurses may wish to use this evidence to develop guidelines and protocols to enhance practice and patient care. Moreover, nurse practitioners may face difficulties when trying to make decisions about the quality of individual pieces of evidence for application to practice. In either case, it is not sufficient that nurses simply access and read the latest evidence. It is essential that we also **critically engage** with each research study to determine the quality of the evidence. It is therefore important to understand the process by which research is conducted to enable this critical evaluation and analysis to be undertaken.
- Research is a process of systematic enquiry that aims to answer questions about identified topics. It comprises primary investigations that are conducted to gain knowledge and understanding of events and occurrences. Research evidence in nursing focuses on issues and practice in the field of health care.
- It is important that all elements of the research process are followed and that none are omitted. If parts of the process are omitted then this can reduce the rigour or robustness of a study and in turn this weakens the study's findings.

The key elements of the research process and its relationship to practice are shown in the diagram on the following page.



## Evidence-based practice and the research loop

The diagram below illustrates the way in which practice issues are investigated through the research process and how the findings form the evidence base for practice.



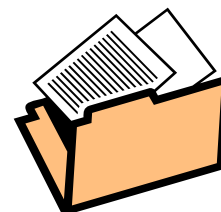
## **The Research Loop: Development of a research question, aim, objective or hypothesis**

### **Learning outcomes**

After completion of this section of the workbook and following a period of reflection you will be able to:

- Differentiate between questions, aims, objectives and hypotheses in research studies.
- Identify an example of each of the above.

### **Fact File**



### **Research question**

A research question can be defined as: "an explicit query about a problem or issue that can be challenged, examined and analysed, and that will yield useful, new information." (Brink and Ross-Kerr, 2006; p.2)

Questions can originate from a number of sources. These sources include:

- Clinically focused questions which arise from personal professional experience.
- Professional literature which prompts curiosity about unanswered issues.
- National directives such as the Scottish Diabetes Framework (2002) which details best practice for people with diabetes.

### **Example of a research question originating in practice**

Flemming (1998) describes her experience of working in palliative care where pain diaries were used. She wondered if they were useful for patients with advanced cancer, and developed the following question:

*'Does the use of pain diaries in the palliative care of patients with cancer lead to improved pain control?'* (Flemming, 1998, p.37)

### **Developing aims, objectives and hypotheses of research studies**

When designing a research project, the researcher needs to describe the aims and the more specific objectives at an early stage. If clarity of purpose is not achieved it is unlikely that the study will be focused and this will have an impact on all subsequent stages of the process. According to St. Leger et al. (1992, cited in Bowling, 2002) the difference between aims and objectives is one of degree. The aim of a study defines its broad purpose - what the researcher wants to achieve. In contrast the objective(s) of a study is/are more focused statements that identify the specific ways in which the study aim will be achieved. This is explored further using the following example.

### **Aims**

**There are different ways of stating aims in a qualitative and a quantitative study**

Qualitative: The aim of a phenomenological study by King and Turner (2000) was  
'to explore the lived experiences of registered nurses who cared for adolescent females diagnosed with anorexia nervosa'

Quantitative: McKenna et al (2003) undertook a survey of nurses in New Zealand examining horizontal violence (defined as interpersonal conflict among nurses, or 'bullying'). As specified in the abstract, their aims were:

- To determine the prevalence of horizontal violence experienced by nurses in their 1st year of practice;
- To describe the characteristics of the most distressing event experienced;
- To determine the consequences, and measure the impact, of such events, and
- To determine the adequacy of training received to manage the horizontal violence.

### **Objectives**

The aim(s) may be broken down into statements (objectives) of operational tasks which have to be achieved in order to meet the aims of the study. Some researchers miss out this stage; they may produce a list of research questions which contain both the broad aim and the more detailed objectives, as McKenna et al. (2003) have, above.

### **Hypotheses**

Hypotheses are only used in quantitative designs; they cannot be used with qualitative approaches. A hypothesis is a statement that expresses the relationship between two variables (a variable is any characteristic/factor that can be varied or measured e.g. weight, age, blood pressure). A hypothesis may look for the differences in two groups being tested. Researchers may also construct a statement called a null hypothesis which states that there is no relationship between the variables being studied.

### **Examples of a research hypothesis and a null hypothesis**

John Roberts, a health visitor working with teenager smokers, is interested in looking at the effect which a video produced by NHSScotland will have on their smoking habits. The research hypothesis he develops for his quantitative study is stated as follows:-

- *Teenage smokers who watch a smoking cessation video will be significantly more motivated to stop smoking than those who do not view the video.*

If John wished to state this as a null hypothesis it would read:-

- *Teenage smokers who watch a smoking cessation video will **not** be significantly more motivated to stop smoking than those who do not view the video.*

#### **Critical Reading Tip:**

In research and null hypotheses, the word 'significant' takes on a special meaning. In quantitative research, a 'significant' difference is one which is supported by statistical evidence and is therefore likely to be real. Unless a statistics test has been conducted the word significant cannot be used in this way. The term is not used in qualitative research.

### A10 - Learning activity - Key terms in quantitative research

Look up the meaning of the following terms which relate to **quantitative** methodologies. Now describe these terms in your own words.

Independent variable

Dependent variable

Confounding variable

### A11 - Learning activity - Writing a hypothesis

A revised hand washing protocol was introduced to reduce the incidence of wound infections in a ward. In order to investigate the effectiveness of the revised protocol, the ward manager conducted a quantitative study and developed the following hypothesis:

- *The revised hand washing protocol will significantly reduce the incidence of wound infection in patients in the ward.*

1. How would this be stated as a null hypothesis?

2. Identify the dependent and independent variables in the above hypothesis.

Independent variable

Dependent variable

3. Suggest a possible confounding variable that would need to be taken into account.

Confounding variable

**Activity 11 is continued on the next page**

4. Now repeat the above exercises using your topic of interest.

Hypothesis:

Null hypothesis:

Independent variable:

Dependent variable:

Confounding variable:

#### **A12 - Learning activity - Research question, aims & objectives**

**Critical reading tip:** The aim or objectives of the study are not always stated explicitly any may instead be presented in the form of a research question(s). In all cases, however, it must be clear to the reader what the study hopes to achieve.

If the introductory section of a study fails to identify the specific purpose of the research, the reader could be forgiven for being somewhat confused which may affect how credible they find the study.

There is no rule as to how research questions, aims and objectives are presented. Sometimes the reader will find these incorporated in the text of an article, and will need to extract them in order to get a clear picture of the purpose of the study.

**Now read the first two pages of the research article by Rycroft-Malone et al (2004) and answer the following points.**

- Is the study purpose stated as a question, aim or objectives?

**Activity 12 is continued on the next page**

- State the purpose in your own words
- Is the purpose clearly stated?
- Is there a hypothesis or null hypothesis? Yes / No: If yes then write it below.

### **A13 - Learning activity - Writing a research question**

In the space below write a question you would like answered relating to your area of practice. You may wish to refer to the PICO framework provided earlier.

Question

#### A14 - Learning activity - Health challenges

The World Health Organisation responds to global health challenges through a six point agenda. There is some interdependence between these six agenda priorities.

Search the World Health Organisation web site (<http://www.who.int>) for the 'WHO agenda'.

**What are the 6 agenda items?**

Consider Agenda Item 4 and select a health based issue where you feel research is needed.

Now use a separate piece of paper and create a **mind-map** of related concepts and ideas through association and brainstorming

Rank or prioritise your ideas

Ask questions about your topic: **What causes...?, What is the extent of...?, What influences...?, How effective is....?** The more questions you ask about your topic the narrower and more focused it will become.

## The Research Loop: Literature Review

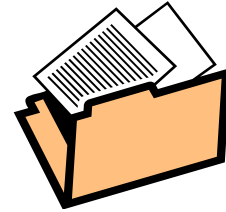
### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Identify reasons for conducting a literature review.
- Describe the process used to conduct a literature search and review.
- Know the difference between research and non-research articles.

### Fact File

In order to locate research articles for a literature review, it is necessary to conduct a literature search. This means finding appropriate research evidence in databases, journals, websites or books. A literature review involves reading and critically analysing the available, relevant and up-to-date research evidence on the topic of interest. **Reviewing the previous literature** that has been written about the topic being investigated is an important part of the research process.



### Rationale for conducting a literature review

- Develops background knowledge of the topic.
- Identifies if the research question has already been answered by previous studies.
- Clarifies the research question and identifies gaps in knowledge.
- Highlights previous data collection tools that could be replicated.
- Prevents duplication of research studies.

### Skills required

- Locating and using library databases.
- Searching literature from different sources (i.e. books, journals).
- Critical reading of previous research & literature to determine strengths & weaknesses of the work, i.e. the skills covered in this workbook.
- Synthesis to summarise the content of literature reviewed.
- Writing ability to present different viewpoints and put forward logical debate.

### Process

- Select the main topic e.g. Care of the depressed patient and develop a PBQ.
- Breakdown the question into key words i.e. depression, mental health, patient, care provision etc.
- Decide the time frame for the search e.g. the previous five years.
- Use databases to search for research articles, using limits to narrow the focus.
- Select relevant articles by reading the title and abstract to filter out irrelevant research.
- Text books may be useful but must not provide the majority of your literature as they quickly become dated and will only cover selected studies.
- Read a recent article on the research topic as this may provide useful secondary sources from the reference list.
- Read selectively as time may be limited. With textbooks use index to help focus your search.
- Critically assess and summarise existing literature
- Write the review succinctly and clearly.

**Critically assessing the literature** is further explored in the section 'Assessing The Quality of Research Evidence'.





## What's research and what's not?

Sometimes it's difficult to decide what research is and what it is not.



- The definition of research is "an original investigation undertaken to gain knowledge and understanding." (RAE, 2001).

However, various types of articles, which all talk *about* research, are published in academic journals and books. It is important that you can recognise and distinguish between the following types of article:

### 1. Primary Evidence

A primary research article will report the findings from a single research study. Following the abstract, it will usually start with a brief literature review. The authors will have written a research question and the paper will usually contain sections about the method, results and discussion. Authors will explain how many participants were recruited in the study and how data were collected and analysed in some detail. Primary evidence is extremely useful for EBP.

**Example :** Jones et al. (2007) Mental health nurse supplementary prescribing: experiences of mental health nurses, psychiatrists and patients.

### 2. Secondary Evidence

Secondary evidence is where the authors are critically examining other people's work - such as a literature review. They will critically discuss many individual research studies all about a particular topic. Most or all of these studies will have been conducted by people other than the authors (sometimes they authors will include their own, previously published, research). Although the method and participants of each study reviewed may be mentioned, this will usually be in less detail than in a primary article. A systematic review is also an example of secondary evidence. Secondary evidence can be extremely useful for EBP.

**Example:** Wilson et al. (2007) Closure for patients at the end of a cancer clinical trial: literature review.

### 3. Tertiary Evidence

Other publications draw together summaries of information about a topic mainly derived from secondary evidence sources (although they may include some primary sources too). Although they can be very useful to gain a quick overview of a topic, they are not sufficiently detailed for EBP, nor can their accuracy be assumed. At the academic level required for EBP, most tertiary level evidence is not acceptable.

**Example:** Encyclopaedia Britannica 2007 (Encyclopaedia Britannica, 2007); Wikipedia ([www.wikipedia.com](http://www.wikipedia.com) ),

#### 4. Clinical Articles

These draw on both primary and secondary evidence to provide an overview of the clinical management of a particular issue. They are particularly useful for busy clinicians who wish to gain an overview of the latest information on a particular topic and will supplement clinical guidelines, if any exist. The only disadvantage of clinical articles is that they do not provide a description or critique of the research study upon which the evidence is based. Therefore, readers must rely on the rigour and integrity of the author. This missing information may also make it difficult to determine the degree of relevancy of the evidence to your own population. Whilst clinical articles frequently provide an excellent grounding in the key issues on a topic, they are not usually specific enough to answer your PBQ.

**Example:** Cunningham and Puskar (2007) Nursing implications of alcohol withdrawal in the postoperative orthopaedic patient.

**Critical Reading Tip:** One of the ways to determine whether an article is research or not is to read the abstract or summary box given at the beginning of the paper. If the article is research then it will usually contain most of the elements of the research process (*see research loop*). An example of a research extract is given below. The different parts of the research process are underlined.

**Do they practise what we teach? A survey of manual handling practice amongst student nurses. (Swain J. et al., 2003)**

Experience of preparing student nurses in manual handling suggested that they did not practise the techniques they had been taught. A review of literature revealed there was a theory-practice gap and that nurses did not always carry out a risk assessment or use appropriate aids.

The aim of the study was to answer 3 questions

1. Do students know what they should be doing?
2. Do students report doing what they should be doing?
3. If not, why not?

A quantitative perspective with survey design was used with data collection tools of questionnaires which were created specifically for the study. The study sample included all students (n=148) on the adult branch in one higher education institution in England. Ethical approval was sought from the University's Ethics Committee. To assess each student's knowledge, diagrams of 5 techniques were presented and students were asked to indicate which were recommended. Different types of questions were used to elicit information related to the reasons why good practices were not always used. Data were analysed using descriptive statistics. Findings showed that students' knowledge of whether particular techniques were recommended was fair. They indicated however that they were frequently unable to use recommended techniques in practice. The most frequent explanation given was the influence of other nurses. Other reasons were the unavailability of manual handling aids, lack of time and patient preferences. Recommendations are suggested, to help reduce the theory-practice gap through developing different approaches to education by using more ward-based learning involving all team members.

### A15 - Learning activity - Assessing the literature

**Critical reading tip:**

Certain questions can help you as the reader to decide how good the review of literature is within a research article.

Read the research article by Lou, et al, (2007) and answer each of the following questions:

1. What type of journal is it? Do you think it is academic (peer-reviewed) or popular journal (may have little research but provides updates on practice issues)? How can you tell this?
2. Are the authors qualified (professional, academic, research background)?
3. Date of publication (is it still relevant to today's practice?).
4. Are the references used by the authors from a range of sources and up-to-date? Some could be older (e.g. more than 2-5 years if a seminal piece of work e.g. a policy document).
5. Have the authors identified the keywords used in the literature search? If so, state them below. Do the keywords reflect the content of the review?
6. What is the country of origin? Is the material relevant to the NHS or nursing practice in Scotland and the United Kingdom.
7. What messages are the authors giving e.g. the reader should be able to understand the context & background of the study. For critical reading purposes you should summarise the key content of the review.
8. Based on the answers would you say the literature review was generally good or poor? (circle which one is applicable). State your reasons for this.

## The Research Loop: Population and sampling

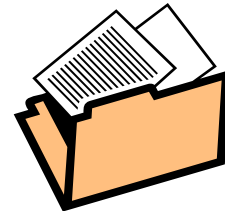
### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Explain key terms related to the types and methods of sampling.
- Recognise appropriate sampling strategies for different research approaches.
- Describe the effects of sampling processes on the rigour of a research study.

### Fact File

Most research involves **participants** (sometimes referred to as respondents or subjects) who are the people who have been studied.



#### Subjects or Participants?

Research studies used to refer to the people that took part in them as 'subjects'. However, this failed to recognise the vital contribution these people made to the study. To afford them greater respect and more accurately reflect their active and voluntary participatory nature, the term 'participants' is now preferred.

The group which these people are chosen from is called the **study population**. The population is decided by the researcher and is based on certain shared characteristics of its members. Remember the example of John Roberts the health visitor studying the effect of a smoking cessation video on teenager smokers? He decided that the population for his study would share the characteristics of;

- being teenagers between the age of 15 - 19 years
- being smokers
- being resident within a particular geographical area i.e. Scotland

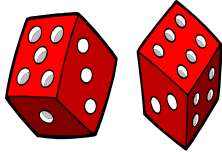
Even with these characteristics, the size of this population is far too big for them all to take part in the study. Therefore John must contact a sub-group called a **sample** which would be the people who are actually included in the final study. The source from which the sample are obtained is called the **Sampling Frame**. The way in which a sample is chosen is called a **Sampling Strategy**. The sample needs to accurately reflect the population from which it was chosen.

- Sampling is the process of selecting participants for research on the basis that they can provide detailed information relevant to the study.
- All research must ensure that the method by which the sample is selected is appropriate to the design/approach of the study. This will include consideration of the research question itself and the type of data to be gathered.
- The sample should have been chosen in such a way as to reduce bias and/or to be representative of the population under study. Eligibility criteria ensure the inclusion - or exclusion - of individuals with those particular characteristics. The criteria may be expressed as; **Inclusion Criteria** (see John's example above), or **Exclusion criteria** e.g. John may decide that he would not include teenagers who have mental health problems or those who are on any prescribed medication. In this way John controls some of the variables which may cause the sample not to be representative of the

teenage smoking population. **Note:** we usually have either inclusion or exclusion criteria in a study since one is the logical opposite of the other.

- The sampling frame will depend upon the study population, however, it is also important to consider the limitations of the sampling frame chosen. For example, if researchers investigating teenage smoking behaviours recruit their participants from schools (= sampling frame), they will miss out teens >17 who are not at school, teens who are excluded from school etc.
- The two boxes below provide a summary of the two different broad approaches to sampling. You must be able to define all the terms used.

#### Probability Sampling Methods



- Most often associated with **Quantitative research**.
- Are based on the premise that everyone in the population has an equal chance of being selected - **Random Sampling**.
- The sample size in **quantitative** design is normally **large** (it may range from 30-2000+ depending on the design). However, you must not rely on sample size to tell you whether a study is qualitative or quantitative.
- A high response rate is required to ensure the sample reflects the wider population.

There are four main types of probability sampling methods;

- Simple random
- Stratified random
- Systematic random
- Cluster random

Look up these terms in a text book and write your own definition for each of them.

#### Non-Probability Sampling Methods



- Most often associated with **Qualitative Research** but convenience sampling may occur in quantitative research.
- Occur when the probability of a person's inclusion in the sample is generally not known - 'non-random sampling'
- The main types of non-probability sampling require judgement as to who to include, and convenience for the researcher, with overlap between the two categories.
- The sample size in **qualitative** approaches is normally **small** (i.e. range from 1- 50 depending on the study aims and approach). However, you must not rely on sample size to tell you whether a study is qualitative or quantitative.
- The response rate is of less importance as participants are selected to achieve a good representation of views and experiences.

These methods include;

- Volunteer
- Snowball
- Purposive
- Quota
- Convenience (sometimes referred to as 'Accidental' sampling)

Look up these terms in a text book and write your own definition for each of them.

## Response Rates

No matter how many individuals are asked to participate in a research study, not all will take part or complete the research. There are many factors which influence this, for example participants may not have time, may not be interested in the research etc.

The **Achieved sample** is the final group of people who actually fully participated in the study, once the loss of those unable, unwilling or unavailable have been taken into account.

The **response rate** is important as it tells the reader what proportion of people from those asked actually participated in the study. The nearer the response rate is to 100%, the more sure we can be that the results are representative of the wider population.

Response rate is calculated as follows;

$$\text{Response Rate} = \frac{\text{achieved sample} \times 100}{\text{selected sample}}$$

**Worked Example:** In a study to identify health promotion training needs amongst clinical nurses in Lanarkshire, Thompson and Kohli (1997) distributed 150 questionnaires to nurses in three Trusts. There were 107 questionnaires returned, giving a response rate of:  $107/150 \times 100 = 73.3\%$

### When is the response rate high enough?

It is difficult to define an acceptable response rate that could apply across all research studies. Technically, we want as high a response rate as possible. Researchers usually compare their response rate with other studies conducted with a similar population. As a guide, somewhere between 30% - 70% response rate can be considered normal within health research.

### Response rates and Qualitative Research

Qualitative research does not aim to be representative of the wider population, so the issue of response rate is rarely considered. Also qualitative research aims to get a sample of diverse people rather than one that reflects a population as such. However, non-response may be problematic in qualitative research if certain groups of people that we want to take part in the research, refuse to do so.

### A16 - Learning activity - Sampling

1. In a quantitative study you wish to obtain the opinions of 2<sup>nd</sup> year student nurses about their undergraduate programme. You develop a questionnaire to give to a sample of students.

How would you identify a representative sample (what is your sampling frame)? What type of sampling could you use?

In a qualitative study you wish to interview students about relevant work experience before they began their nursing degree programme. What type of sample (probability or non-probability?) would be selected for interview and how could they be selected?

#### In - text references : Evidence-based practice and the research loop

\*Brink, P.J., and Ross-Kerr, J.C., (2006) *Basic steps in planning nursing research: from question to proposal*. Jones and Bartlett: Boston: (Chapter 6,7 & 8).



Cunningham, L. and Puskar, L. (2007) Nursing implications of alcohol withdrawal in the postoperative orthopaedic patient. *Journal of Orthopaedic Nursing*. Vol. 11 (2), pp.91-98.

Flemming, K. (1998) "Asking answerable questions", *Evidence-based Nursing*, Vol. 1 (1), pp. 36-37.

Jones M., Bennett J. , Lucas B., Miller D. & Gray R. (2007) "Mental health nurse supplementary prescribing: experiences of mental health nurses, psychiatrists and patients", *Journal of Advanced Nursing*, 59(5), 488-496

\*King, S.J., and Turner, de S. (2000) "Caring for adolescent females with anorexia nervosa: registered nurses' perspective", *Journal of Advanced Nursing*, Vol. 32 (1), pp. 139-147.

Lou, M.-F., Dai Y.-T., Huang, G.-S., Yu, P.-J (2007) Nutritional status and health outcomes for older people with dementia living in institutions *Journal of Advanced Nursing* 60(5), 470-477

McKenna, B.G., Smith N.A., Poole, S.J., and Coverdale, J.H, (2003) "Horizontal violence: experiences of Registered Nurses in their first year of practice", *Journal of Advanced Nursing*, Vol. 42 (1), pp. 90-96.

St. Leger, A.S., Schneiden, H. and Wadsworth-Bell, J.P. (1992) *Evaluating Health Services' Effectiveness*. Open University Press: Buckingham cited in Bowling, A. (2002) *Research methods in health, 2<sup>nd</sup> ed.*, Buckingham: Open University Press.

Swain, J., Pufahl, E., and Williamson, G. (2003) "Do they practise what we teach? A survey of manual handling practice amongst student nurses", *Journal of Clinical Nursing*, Vol. 12 (2), pp. 297-306.

Wilson E., Elkan R. & Cox K. (2007) "Closure for patients at the end of a cancer clinical trial: literature review", *Journal of Advanced Nursing*, 59(5), 445-453

---

### **\*Directed Reading**

\*Bowling, A. (2002) *Research methods in health, 2<sup>nd</sup> ed.*, Buckingham: Open University Press. (Chapters 7 & 16)

\*Cluett, E.R., and Bluff, R. eds. (2006) *Principles and practice of research in midwifery. 2<sup>nd</sup> ed.* Baillière Tindall: Edinburgh. (Chapter 3)

Encyclopaedia Britannica (2007) *Encyclopaedia Britannica 2007*. Rev Ed edition, 1<sup>st</sup> April 2007. Encyclopaedia Britannica Ltd: UK.

\*Parahoo, K. (2006) *Nursing research: principles, process and issues*. Palgrave MacMillan: Houndmills. (Chapters 7, 8, 9 & 12).

\*Rees, C. (2003) *An introduction to research for midwives. 2<sup>nd</sup> Ed.* Books for Midwives Press: Hale. (Chapters 3,5,6 & 14)

\*Rycroft-Malone, J., Harvey, G., Seers, K., Kitson, A., McCormack, B., and Titchen, A. (2004) "An exploration of the factors that influence the implementation of evidence into practice", *Journal of Clinical Nursing*, Vol. 13 (8), pp. 913-924.

\*Thompson, C. (1999) "If you could just provide me with a sample: examining sampling in qualitative and quantitative research papers", *Evidence-based Nursing*, Vol. 2, pp. 68-70.

Thomson P. and Kohli H. (1997) "Health promotion training needs analysis: an integral role for clinical nurses in Lanarkshire, Scotland", *Journal of Advanced Nursing* , Vol. 26, pp.514-507



## The Research Loop: Ethical Issues in Research.

### Learning outcomes

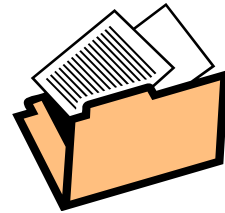
After completion of this section of the workbook and following a period of reflection you will be able to:

- Discuss key ethical principles relevant to health care.
- Explain the key ethical issues that need to be taken into account when research which involves human participants is carried out.
- Describe how ethical aspects of health care research are monitored.

### Fact File

#### What are ethics?

Ethics play an important part in the conduct of research.



In relation to research, ethics is defined as: "a system of moral values that is concerned with the degree to which research procedures adhere to professional, legal and social obligations to the study participants" (Polit and Beck, 2006; pp.499).

Health care professionals are also bound by moral and ethical principles and these are set out in NMC (2008) 'The Code, Standards of Conduct, Performance and Ethics for nurses and midwives', (NMC 2008).

Any research undertaken in developed countries **must** be approved by a relevant ethics committee.

### A17 - Learning activity - Ethics and the profession

Log onto the internet and go to the NMC home page at: <http://www.nmc-uk.org>  
Click on [http://www.nmc-uk.org/consent\\_advice\\_sheet\\_july\\_2008\(1\)\(1\).pdf](http://www.nmc-uk.org/consent_advice_sheet_july_2008(1)(1).pdf)  
or use the 'Site Search' box at the top of the page to search for the 'The Code, Standards of Conduct, Performance and Ethics for Nurses and Midwives'. Open the document and read the section on consent, in particular, forms of consent and then:

1. Give an example from your own practice or that of a health professional with whom you have worked in which consent was obtained from a patient.
2. Give two more examples from practice where consent should be obtained from patients.

The International Council of Nurses (2003) identified six ethical principles that need to be taken into account in order to safeguard patients' rights.

- **Beneficence:** the research should benefit the participants of the study and society at large.
  - **Non-maleficence:** the research should not cause harm to the participants.
  - **Fidelity:** The researcher should ensure that the well-being of the participants is safeguarded and that their interests are put before the needs of the study.
  - **Justice:** Participants should be treated equally and fairly.
  - **Veracity:** The researcher must always tell the truth to the participants, even if this means that they may choose to withdraw from the study.
  - **Confidentiality:** All aspects of the study and details of the participants must be kept confidential during and after the study, in accordance with the agreement reached with the participants. This can be achieved by assigning numbers or pseudonyms to the study participants so that they cannot be identified.
- 
- **Anonymity** is another important issue involved in research ethics. It describes the situation when participants remain unknown, even to the researcher. For example, respondents to a questionnaire would be anonymous if the researchers cannot trace the questionnaire back to the participant. Note, anonymity is frequently not possible in research, especially qualitative research. However, as long as confidentiality is achieved, anonymity is not thought necessary.

### **Consent from participants**

Other ethical issues that you might come across when reading research papers are about informed and assumed consent.

### **What is informed consent?**

Informed consent may have come from the Nuremberg Code (1947), which was established following investigation of war crimes. Informed consent means that participants **voluntarily** agree to take part in the study **after** all the relevant information about the study is fully and truthfully explained to them **prior to participation**. This should be in written format, but the researcher should also explain the study verbally and give the participant time to ask any questions. The main points that they should be given are;

- the nature of the treatment or intervention (if one is involved)
- the risks
- the benefits
- the alternatives

One of the key points to remember is that participants must be able to **understand** this information. Therefore, special care and attention to this must be exerted when conducting studies with vulnerable groups e.g. children, the elderly, pregnant women and people with mental illness or learning disabilities.

It is also vital that participants must not be coerced into participation in any way, and that they know **they may refuse to participate** or withdraw at any time **without prejudice**.

### What is Assumed Consent?

You might see this used in relation to questionnaires. Here, the participant is sent a questionnaire accompanied by an information sheet, which fully details the study aim, protocol, sampling, the researchers / organisation behind the study, relevant ethical issues and that participation is voluntary. Each participant decides for themselves whether to complete and return the questionnaire. If the participant does return a completed questionnaire they the researcher may assume that the participant has consented to take part in the study - assumed consent. An advantage of this is that it is time efficient and participants can remain anonymous to the researcher. The disadvantage is that participants are not given the opportunity to ask the researcher questions of the study, and the researcher cannot be sure that participants truly understood the nature of the study.

#### **A18 - Learning activity - Finding out about ethics approval processes**

You are a member of staff working for an NHS Board who wants to conduct a study on patients' experiences of outpatient visits. You have been advised by the research and development advisor to obtain information about ethical approval requirements via the National Research Ethics Service (NRES) website [www.nres.npsa.nhs.uk](http://www.nres.npsa.nhs.uk) Go to this site, and click on Applicants. Use the list on the left side of the page to navigate the site and answer the following questions.

1. Record the contact details and name of the Chair of a local research ethics committee in an NHS Board in Scotland.
2. Click on the Guidance link and print out the NRES 2 page leaflet "Explaining Research". List 3 key points from this leaflet which you feel are important for your proposed study. Attach a copy of the leaflet to your workbook.

## National Research Ethics Service (NRES)

The National Research Ethics Service, [www.nres.npsa.nhs.uk](http://www.nres.npsa.nhs.uk) has the following functions:

- Acts on the behalf of the Department of Health/Scottish Government
- Implements standards to ensure national consistency
- Conducts training for REC (Research Ethics Committee) members and administrators
- Establishes regional offices across the UK

**Research Ethics Committees (RECs)** have been established in all NHS Boards to review all ethical issues associated with research bids to ensure that safe and ethical research is being conducted. They are made up of lay and professional members and act as public watchdogs with a remit to protect participants from harm, to ensure that valid, informed consent is given, and that there is no undue pressure to participate. Local Research Ethics Committees (LRECs) are concerned with the following:

- How will the participants be recruited? Does this involve access to confidential medical records, and if so, has the appropriate permission been sought and obtained?
- What information will be given to the participants to ensure they are well informed before they give their signed consent?
- The consent form must be clear and unambiguous. Many consent forms now also contain the information sheet to ensure the participant has seen this at the time of giving consent.
- The participants must be clearly informed that they can withdraw at any time, without the need to give a reason and with the assurance that this will not affect their care and treatment.
- Vulnerable participants must be protected. This includes children, women of child-bearing age; those whose mental competence is in doubt, and institutionalised people who may feel that they must consent due to coercion or because they are 'captive participants'.
- There must be provision to ensure confidentiality of all data. This may include information on how the data will be stored or destroyed, and who will have access to the data. It will also include information on how anonymity will be maintained.

The **Integrated Research Application System (IRAS)** was established in 2008 to provide a single system for applying for management permission (Research and Development) and ethical approvals for health and social care/community care research in the UK. This new system captures the relevant information needed by RECs and other review bodies in order to meet all regulatory and governance requirements.

This link to the IRAS application process <https://www.myresearchproject.org.uk/> enables researchers to comply with the requirements of all the major research review boards in the UK.

### **A19 - Learning activity - Ethical approval**

#### **Critical Reading Tip:**

Now read the appropriate section(s) of Enns & Gregory's (2007) article and answer the following questions;

- Was ethical approval sought and received from a Research Ethics Committee?
  
- How was the sample recruited?
  
- Was written informed consent obtained?
  
- How were responses to questions made anonymous?
  
- How was data protection practised (i.e. storage of and access to information)?
  
- Were any ethical issues not addressed by the researcher?

## In - text references: The Research Loop: Ethical issues in research



International Council of Nurses. (2003) *Ethical guidelines for nursing research*, ICN: Switzerland.

Nursing and Midwifery Council (2008) *The Code, standards of conduct, performance and ethics for Nurses and Midwives* NMC London

\*Polit, D.F. and Beck C.T. (2006) *Essentials of Nursing Research - Methods, Appraisal and Utilization*, 6<sup>th</sup> ed. Lippincott, Williams & Wilkins: London (Chapter 5)

---

### \*Directed Reading

\*Enns, C., & Gregory, D., (2007) Lamentation and loss : expressions of caring by contemporary surgical nurses, *Journal of Advanced Nursing*, Vol. 58 (4), pp. 339-347.

\*Frith, L. and Draper, H. Eds. (2004) *Ethics and midwifery: issues in contemporary practice*, 2<sup>nd</sup> ed., Books for Midwives: Edinburgh. (Chapter 14).

\*Parahoo, K. (2006) *Nursing research: principles, process and issues*. Palgrave MacMillan: Houndmills. (Chapter 6).

\*Rees, C. (2003) *An introduction to research for midwives*, 2<sup>nd</sup> Ed. Books for Midwives Press: Hale (Chapter 8).

Tod, A.M., Nicholson, P., and Allmark, P. (2002) "Ethical review of health service research in the UK: implications for nursing", *Journal of Advanced Nursing*, Vol. 40 (4), pp. 379-386.

## The Research Loop: Data collection

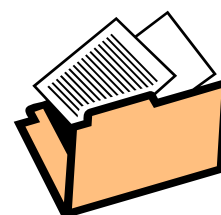
### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Explain key terms related to different types of data collection.
- Recognise appropriate data collection methods for different types of research.
- Describe the processes required to maintain the rigour of the data.

### Fact File

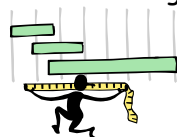
- Information is collected in research using some type of data collection tool, instrument or research method. In the same way that nurses need equipment to gather information on the patient (e.g. assessment checklist, or blood pressure machine), researchers use a pre-existing tool (e.g. questionnaire or interview semi-structure) to gather data. Sometimes they may need to develop a new tool to meet the specific needs of their study.
- Data collection methods are governed by:
  - Perspective/design/approach of the study.
  - Research aims/objectives/question/hypothesis.
  - Amount of knowledge available about the variable of interest.
- More than one method can be used in a study (e.g. a researcher studying the emotional needs of pregnant women may hand out a questionnaire via their GP and then follow this up with a small number of interviews with women and their partners).
- The types of data collection methods often depend on the underlying framework.



### Quantitative methods



- Structured Questionnaires
- Structured interviews
- Structured observation
- Physiological Measures e.g. pulse rate, blood cholesterol level
- Likert Scales
- Visual Analogue Scale
- Pre-existing Numerical Data



### Qualitative methods



- Semi-structured interviews
- Unstructured interviews
- Unstructured observation
- Focus groups
- Diaries
- Videos
- Historical data
- Pre-existing Descriptive Data



## Writing questions

### The content of questions should be:-

- relevant to population and sample
- clear and unambiguous
- inoffensive
- medical terms need to be defined
- short and simple

### To ensure valid and reliable responses the researcher needs to avoid:-

- vague words (even commonly used ones)
- leading or loaded questions which will introduce bias
- implicit assumptions
- hypothetical questions

## Types of questions found in research tools

**Closed questions:** These are primarily found in quantitative research tools

- They require a one word / very short answer.
- Sometimes they require a choice from a finite range of possible options.
- Here are some examples of different types of closed questions (with the name of each type is in brackets)

1. *What is your gender (male / female / transgender)?* (closed question)

2. *Approximately how many cigarettes do you smoke each day?* (multiple choice)

- |        |                |
|--------|----------------|
| • Nil  | • 11-15        |
| • 1-5  | • 16-20        |
| • 6-10 | • 20 and above |

3. *How much pain do you have at the moment?* (circle as appropriate)

1	2	3	4	5
No pain				Unbearable Pain

This type of scale can also be used to measure attitudes. It is sometimes called a **Likert scale**.

4. *How well do you adhere to your daily medication? (Mark an X on the cross to indicate your answer)*

Very Poorly	_____	Perfectly
-------------	-------	-----------

Participant's score is the distance along the line the X appears, in centimetres (ranging from 0 - 10). This is called a **Visual Analogue Scale**.

5. *What do you feel is the most important attribute for a nurse? Rank in order of importance with 4 being most important and 1 least important. (rank order)*

<u>Attribute</u>	<u>Rank order number</u>
Compassion	
Patience	
Friendliness	
Empathy	

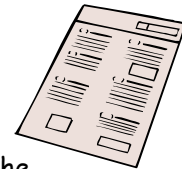


### Open questions

- These are primarily found in qualitative research tools.
- These enable the respondents to use their own words and encourage in-depth, discursive responses.
- Examples are;
  - *Why did you decide to be a nurse / midwife / healthcare practitioner?*
  - *What do you feel are the main attributes of a nurse / midwife / healthcare practitioner?*
  - *How would you describe your role?*
  - *What are the reasons for the current retention difficulties within the profession?*
- Sometimes 'probe' questions are used to find out more about the issue;
  - *Can you tell me more about that?*
  - *How did that make you feel?*

### Research tools - Questionnaires

- Usually used in quantitative research studies.
- Usually completed by respondents without assistance from researcher (called a 'self-answer questionnaire').
- Can be delivered by post, on a computer or the internet, over the telephone, in person by the researcher or via another professional.
- When a researcher reads out questions to the participant and fills in the answers for them, they are known as 'researcher administered questionnaires' or 'structured interviews'.
- Primarily involve closed questions, but sometimes may also include a few open questions.



#### Advantages

- Large number of people reached
- Wide geographical areas can be covered
- Low cost to distribute
- Easy and quick to analyse
- Anonymous
- Absence of interviewer (researcher) effect
- Lay people are familiar with questionnaires

#### Disadvantages

- No opportunity to clarify questions
- No opportunity for respondent to expand on answer
- Questions limited to those specified before the study.
- Data obtained may be superficial as all categorised
- Respondent can confer with others when answering
- Low response rate
- Participants often skip open questions or provide only a brief answer.

## Research tools - Interviews



- This is a data collection method where the researcher obtains responses from a participant in a face to face encounter or by the telephone.
- There are 3 main types of interviews:-
  1. **Structured interviews (quantitative research)**
    - Also called Researcher Administered Questionnaires.
    - Questions designed prior to interview and listed in a tool called a questionnaire.
    - All parts of the interaction are scripted, including introductory information about the study, participation instructions and any debriefing and thanks at the end of the interview.
    - The researcher asks the questions exactly as given in the schedule and does not deviate from the script.
    - Mainly closed questions.
    - Range of responses is often predetermined to help make analysis easier and amenable to statistical interpretation.
    - All participants are asked the same questions.
  2. **Semi-structured interviews (qualitative research)**
    - Question designed prior to interview and listed in a tool called an interview semi-structure.
    - Primarily open questions, though a few closed questions may also be included (particularly for demographic information etc.).
    - Major questions asked in largely the same way but researcher free to alter sequence.
    - Not all participants asked exactly the same questions.
    - Can adapt questions for comprehension providing alternatives to set questions.
    - New questions arise as research progresses and new, unexpected areas of inquiry arise.
  3. **Unstructured interviews (qualitative research)**
    - Researcher has a list of topics to cover.
    - Any order can be used, but ideally aim to follow the participants 'flow'.
    - Aim to discover participant's story.
    - Researcher can join in with discussion.
    - Participants encouraged to ask their own questions - seen more as 'co-researchers' than passive participants.
    - Topics are likely to develop during the course of data collection to more accurately explore participant's experiences.
- The advantages and disadvantages of the interview are the opposite of those stated above for the questionnaire i.e. the advantages of the questionnaire are the disadvantages of the interview method and visa versa.

### Research tools - Observation

- The Observational method is a useful way to collect data within in health care research. It may be used for either quantitative or qualitative research.
- **Structured Observation** (Quantitative): A checklist of different activities to be recorded is constructed prior to data collection. Then, the frequency of each activity is recorded during given time periods and data are analysed statistically. For example, a quantitative observational study may construct a checklist of different nursing activities, then count the frequency of each practice on the ward, during an 8 hour shift on several days/evenings over a one month period.
- **Unstructured Observation** (Qualitative): Here, the researcher does not create a checklist in advance but instead observes and records all behaviours as they happen, using field notes. This type of data collection can be very intensive therefore the researcher is likely to collect data within certain timeframes e.g. on day one 7-9am, day two 9-11am etc. The aim here would not be to document the frequency of each activity but instead, understand the range of activities that occur and unique situations that arise.

#### A20 - Learning activity - Writing questions for a data collection tool

Identify a topic or an area of practice that you think you might be interested in investigating. Now write some questions which you could use to investigate this topic.

Topic/area of practice \_\_\_\_\_

#### Quantitative approach

Write 2 closed type questions you would use for a questionnaire.

1.

2.

#### Qualitative approach

Now write 2 open questions you could use in a semi-structured interview.

3.

4.

### **Critical Reading Tip - How to maintain rigour in data collection**

This activity will help you identify strengths and weaknesses in the data collection process used in a study. Where weaknesses exist this limits the robustness and value of the research. Certain strategies to maintain rigour and thus strengthen the study can be employed. These are detailed below under the 2 main approaches of qualitative and quantitative research. It is important to note the different terminology used in each approach as they are **not** interchangeable.

#### **Quantitative research**

- Validity and Reliability of a tool/instrument can be improved by:
  - Previous evidence of its use in other published studies.
  - Testing a newly developed tool in a pilot study.
  - Checking that the number and type of questions are sufficient to study the topic.
  - Checking that questions appear sensible, given the research aim.
  - Agreeing that the tool measures what it is meant to measure i.e. will it answer the main research question/aim?
  - Confirming the instrument provides consistency with each respondent and with the same respondent on different occasions.
  - Ensuring that experts and potential participants have reviewed the tool to agree that it appears to address all the required issues in a clear and straightforward way.

#### **Qualitative research**

- Credibility of the data collection method can be improved by:
  - Evidence of successful use of the method in a previous study.
  - Using a newly developed topic guide in a pilot study to check for clarity and to remove ambiguity.
  - Noting things or events that might influence the data i.e. use of tape recorder.
  - Describing where the data were collected.
  - Describing when the data were collected.
  - Describing by whom the data were collected.
  - Describing how the data were collected.
  - Member checking of data (verification of raw data by original research participant).
  - Clearly describing the researcher's subject position, that is, their ideological, philosophical, theoretical, personal, professional and political affiliations (e.g. researcher is a left wing, feminist nurse with 10 years nursing experience in a cardiac ward and conducted a phenomenological analysis).
- Auditability/Decision trail refers to all the processes and decisions made by the researcher during data collection phase. This should be explicitly and accurately described within any published work.

### **A21 - Learning activity - How to maintain rigour in data collection**

Now read the data collection section in Lou et al, (2007) and Enns & Gregory (2007) and answer the following questions:

1. How were the data collected for each of the studies?

Qualitative data collection tool

Quantitative data collection tool

2. How did the authors show they had maintained rigour?

Qualitative data -credibility improved by:

Quantitative data - reliability & validity improved by:

### Further Reading and \*Directed Reading: The Research Loop : Data collection



\* Cluett, E.R., and Bluff, R. eds. (2006) *Principles and practice of research in midwifery*. 2<sup>nd</sup> ed. Baillière Tindall: Edinburgh. (Chapters 4 & 10)

\*Enns, C., & Gregory, D., (2007) Lamentation and loss : expressions of caring by contemporary surgical nurses, *Journal of Advanced Nursing*, Vol. 58 (4), pp. 339-347.

\*Lou, M.-F., Dai Y.-T., Huang, G.-S., Yu, P.,-J (2007) Nutritional status and health outcomes for older people with dementia living in institutions *Journal of Advanced Nursing* 60(5), 470-477

\*Parahoo, K. (2006) *Nursing research: principles, process and issues*. Palgrave MacMillan: Houndmills. (Chapters 13 ,14 & 15).

\*Polit, D.F. and Beck C.T. (2006) *Essentials of Nursing Research - Methods, Appraisal and Utilization*, 6<sup>th</sup> ed. Lippincott, Williams & Wilkins: London (Part 4)

\*Rees, C. (2003) *An introduction to research for midwives*. 2<sup>nd</sup> Ed. Books for Midwives Press: Hale (Chapters 9, 10 & 11).

Kock, T (1994) "Establishing rigour in qualitative research: the decision trail", *Journal of Advanced Nursing*, Vol. 19, pp.976-986

## The Research Loop: Analysis of Qualitative and Quantitative Data

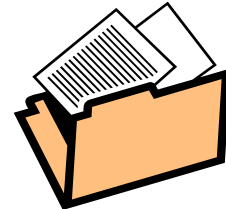
### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Explain key terms related to qualitative and quantitative data analysis
- Recognise appropriate analyses for different types of data.
- Describe the processes required to maintain the rigour of the analysis process and therefore the findings.

### Fact File

- For most practitioners the results section is the most important part of a research report as it provides information which can be used in their practice.
- Like anything within health care there can be good or bad practice in research. It is therefore important for nurses to be able to identify any weaknesses in how researchers have analysed their research data.
- Very different techniques are used to analyse qualitative and quantitative data.



### Qualitative data - Short answer responses

- Open-ended questions in questionnaires, and some interview questions, generate 'short answer' responses. As you might expect from their name, these are less in-depth answers to questions.
- The researcher uses the following process to analyse these data;
- When data are audio recorded, answers are transcribed verbatim (word for word) onto a PC.
- The researcher reads the transcripts repeatedly, looking for similarities and/or differences in responses from participants.
- Issues which are relevant to the original question are selected, whilst the rest is ignored.
- These data are then summarised into main themes e.g. in a study of patient experiences of chronic illness the issues might be *frustration, sadness, anger, despair*. From this the researcher may identify the theme of '*feelings*'

### Qualitative data - In-depth data from semi-structured and unstructured interviews

- Semi & Unstructured interviews usually generate lengthy, in-depth data that is discursive in nature (i.e. in-depth discussion, not merely short responses).
- The researcher uses the following process to analyse the data;
- Interviews are usually audio recorded, then transcribed verbatim onto a PC.
- The data are thoroughly read to familiarise the researcher with the content.
- Responses are then divided into components i.e. sentences.
- Key ideas from these sentences (data reduction) are used to form a **reduction list**.
- These ideas are then **interpreted** to identify main themes from the text.
- Quotes are grouped under each theme as examples of the meaning of the theme.
- Researchers develop links between themes to present a cohesive explanation.
- Many researchers use a concept map to aid this process (see concept map diagram overleaf).

### Extract 1 – Example of analysing data from a long interview

The following is the transcript of an interview with Sir Bob Geldof taken from the ITV programme, 'Father's Day Blues,' in the Tonight series with Trevor McDonald first screened on 17 June, 2002.

TMcD *Sir Bob Geldof, formerly singer of the Boomtown Rats and Live Aid Campaigner, is lending his voice to fathers who like him have been through the mill. It all started in 1986 when he married TV presenter Paula Yates. They went on to have three children. Sadly nine years later, Yates and Geldof were heading towards a very public separation. Was there one point when you thought there is something wrong with this process?*

BG At Day One I was handed this piece of paper saying You may see your children on this day and every second weekend. Why? What had I done? I saw them every day. I took them to school. I bathed them. I fed them. I cooked for them. I read their stories. I cuddled them before going to bed. I listened to them in sleep. Why now was the state and all its instruments of justice - but in this case I call it discrimination - why were they all aimed at me? ...As I was just about to enter court and was very nervous and trying to look neat, a well meaning person came up to me and said: 'Look, one tip Bob - whatever you do don't say you love your children'. And I said Why?'. The answer was as shocking as it is illustrative. He said: 'Because the courts will think it unhealthy extreme if a man articulates his love for his children and they'll vote you down'

TMcD And did you manage to not say it?

BG Well, I waited for a long while and I got tired of hearing how much, you know Paula loved her children - which she did - she did endlessly - as did I. And I eventually said: 'I have to say this - I have been advised not to, but your honour I am here - I am bankrupting myself - because I love my children. And all I want to do - all I want to do - is to be their dad'.

TMcD In the end, you were awarded custody of your three children, but not long after came tragedy... Paula was found dead in bed, following a drugs overdose. This left Michael and Paula's daughter in limbo. A court decision awarded you custody but despite this you are in no doubt that the system is fundamentally flawed.

BG The law does the very opposite, does the very opposite, of what it intends to do. When it denies that the love of a man for his child - which is the real love that dare not speak its name - the love of a man for his child - a father for his child - is equal to the love of a mother for her child. It is precisely equal. It could be expressed in different ways but it is equal, and the law will not recognise that and therefore it is discriminatory and unjust and should be scrapped...I also think at the heart of the law is a grotesque injustice. I think it is worded so that it can only be interpreted to favour one party over the other, and so you get - when people break up - a control for one - the children become the weapon and the shield. The weapon is: 'If you do this to me you won't see your children'. So one party has that control. And the shield is: 'Please don't do this to me because I won't let the children see you.' Give me this or you won't see the children; don't do this to me or you won't see the children. The children become the weapon and



the shield. Remove this from the battleground . Make this area neutral.

TMcD You must have suffered through the horrors though ... reading, I mean ...

BG I've got more letters - and I've hardly talked about this -I have 70 plastic bin liners full of letters. From men, from women, from children, from grandparents - people forget about the grandparents who never see the kids again. 70 bin liners, I can't tell you how many more that is than from Live Aid, and you understood what a phenomenon that was...I can't read, ... I can't, I really can't - Like you know, I am not squeamish as people will have gathered, but I can't do it, I am, you know. it's terrible but I don't know the words. I am heart broken. I read them sobbing. I just can't believe what happens to people - what is done to them in the name of the law...

TMcD How desperate have some of those letters been, I mean ...?

BG So desperate - you know. I certainly know some of the letters; the people are no longer with us. Fathers' Day is like Christmas Day, you know, when you read about people lonely people ... topping themselves. The other big one is Fathers Day, when men are not allowed to see their children. You only have to open your eyes to see what I call the 'Sad Dads on Sundays Syndrome' - in my case Battersea Park - wander though it on a Sunday and just see misery. Go to McDonald's - go to the McDads and see them take their kids.You say: 'Well they don't have to take them to McDonald's', but usually yes they do, because when divorce happens, a guy will go to try and find accommodation because the children are usually with the mum and so they've got the house. So he is now rejected from the family unit. But in fact why is he rejected from the family unit? Why? What's he done ... that would knock him out of the children's life? You say: 'Well he is allowed access'. Access? What is he? Visiting Pentonville prison? You know that won't ... How dare you! You allow me access to my children? The law? I mean if you think about that it's so fundamentally wrong.

TMcD But one reason why judges have favoured the mother so much over the father, has to be, presumably, that they think that that mothers, that women, are more biologically, emotionally well equipped to be just that - mothers - than fathers. They are recognising the differences between men and women and you can't argue with that?

BG No, I mean. Clearly women give birth and clearly women breast-feed, and men can't, but does that alter the fact that men are less emotionally able to be nurturing? - and that's the key factor. Children thrive in a loving environment and it matters not one whit whether the love comes from a man or a woman - preferably both - when they get security. But there is no study that I am aware of where psychologists have been able to determine from examining someone whether they were raised from birth by a man or a woman. What I really want to focus on is that the law - which promotes justice blind, equality - doesn't listen to arguments, it does not care. Family Law flies hugely in the face of this, so where the law promotes injustice, it will fall. And I'm just trying to say: 'Before it falls, let's just get to the core of it. Let's redraft it, and let's redraft it on the basis of where society is now' - i.e. it's moved ahead of the judges, it's moved ahead of the law. They can't interpret the law to the conditions of today.

### **A22 - Learning activity - Identification of issues from qualitative data**

1. Read the above interview transcript. Identify and underline key words or phrases which you think are significant within the text from Bob Geldof's responses.
2. List these key words and phrases (reduction of data).
3. Identify categories under which they can be grouped.
4. Feed back to the whole group.

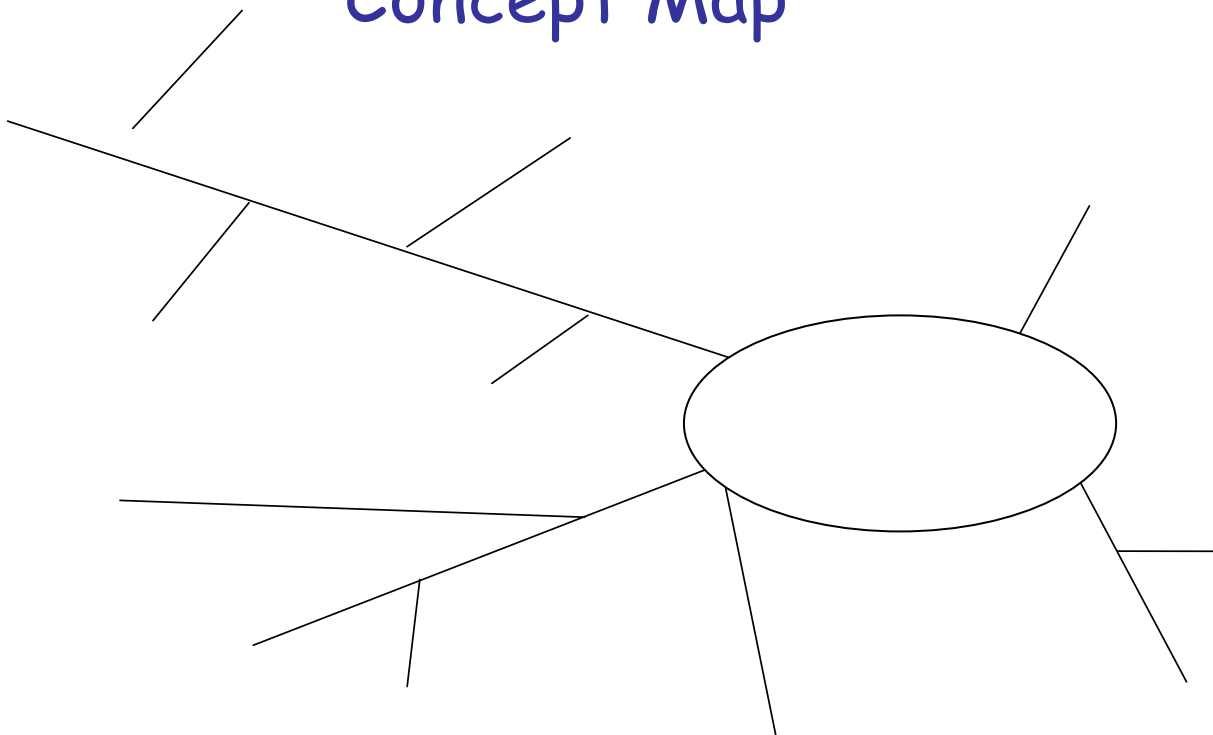
### **A23 - Learning activity - Creating a Concept Map**

Now fill in the concept map below to give a visual picture of views identified in the previous activity.

Group your key words in meaningful ways using the map.

You may wish to add in additional key words to more fully express views more fully.

## **Concept Map**

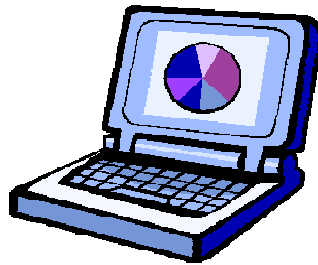


### **Quantitative data**

- Quantitative data are concerned with measurable, quantifiable information which is analysed by the use of descriptive and inferential statistics.
- An accompanying statistics learning pack covers this type of analysis in more detail and is an essential part of this module.
- Students on this module need to work through the accompanying quantitative methods coursebook 'Introduction to Statistics for Healthcare Research' (Young and Frankis, 2006). This is a workbook specifically designed for the needs of students within NMCH who are undertaking research related modules.

#### **Directed reading – Quantitative data analysis**

As a basic introduction to this type of analysis now read the article by Paniagua (2002)



## Analysis of Data

### Critical Reading Tip:

When critiquing the results section of a journal article the reader needs to know how the researcher got from the 'raw data' (information collected from the sample group) to the interpretation and presentation of the findings in narrative form (qualitative) or tables and graphs (quantitative).

**Terms used in determining the robustness of the analysis section of a research report are as follows:**

### Rigour

- This is the general term used in research when determining the robustness of the analysis.
- Different issues that need to be addressed to maintain rigour in qualitative and quantitative data analysis are given below.

### Qualitative data

#### **Auditability can be achieved in the following ways:-**

- Transparency of decision-making must be provided by a clear, comprehensive and concise description of the research process undertaken - the decision trail or auditability. This is familiar to health care staff e.g. a nurse / midwife prescriber has to be able to show how they got from the initial stage of identifying a set of symptoms to diagnosis and prescribing of an effective treatment.
- The researcher should show all details of the analysis process so that the reader can determine the level of influence which the researcher has had on the analysis.

#### **Credibility can be achieved by using:-**

- Faithful descriptions or interpretations of a human experience by the use of direct quotations from participants in the sample group.
- Peer review so that more than one of the researchers will review and analyse the data to avoid bias and to ensure a lack of researcher influence on the results

### Quantitative data

#### **Validity can be achieved by:-**

- Using descriptive and inferential statistics.
- The researcher providing a rationale for the use of these statistical tests.
- Describing the meaning of the statistical analyses achieved.
- Clear presentation of results in graphs/tables/charts which help to explain results to the reader.
- Researcher showing no bias in their interpretation of the data.

**Further Reading and \*Directed Reading: The Research Loop : Analysis of qualitative and quantitative data**



\*Cluett, E.R., and Bluff, R. eds. (2006) *Principles and practice of research in midwifery*. 2<sup>nd</sup> ed. Baillière Tindall: Edinburgh. (Chapter 5 and relevant sections from chapters 6 -9).

Cavanagh, S. (1997) "Content analysis: concepts, methods and applications", *Nurse Researcher*, Vol. 4 (3), pp. 5-16.

Gerrish, K. Lacey, A., (2006) *The Research Process in Nursing* 5<sup>th</sup> edn. Blackwell, Oxford Section 5, Chapters 27,28,29.

\*Paniagua, H. (2002) "Making the most of your data with analysis", *Practice Nursing*, Vol 13 (7), pp.317-319.

\*Parahoo, K. (2006) *Nursing research: principles, process and issues*. Palgrave MacMillan: Houndmills. (Chapters 16 & 17).

Ploeg, J. (1999) "Identifying the best research design to fit the question. Part 2: qualitative designs", *Evidence-based Nursing*, Vol. 2 (2), pp. 36-37.

\*Polit, D.F. and Beck C.T. (2006) *Essentials of Nursing Research - Methods, Appraisal and Utilization*, 6<sup>th</sup> ed. Lippincott, Williams & Wilkins: London (Part 5)

\*Rees, C. (2003) *An introduction to research for midwives*. 2<sup>nd</sup> Ed. Books for Midwives Press: Hale (Chapter 13).

Roberts, J. and Dicenso, A. (1999) "Identifying the best research design to fit the question. Part 1: Quantitative designs", *Evidence-based Nursing*, Vol. 2 (1), pp. 4-6.

\*Young, D. and Frankis, J. (2006) *Introduction to statistics for health care research*, NMCH, Glasgow Caledonian University: Glasgow.

## Assessing the quality of research evidence

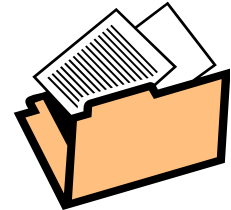
### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Explain key terms related to critical reading skills
- Apply these skills to the appraisal of research
- Appraise the processes required to maintain the rigour in research.

### Fact File

- The particular type of critique described in this section is for use with research articles or reports, but you will also find these skills important for other modules in your programme.
- Appraising the quality of literature is a necessary part of health care practice. It will give you skills to look at all resources you use to aid your practice from an analytical perspective.
- This will then enable you to question practice and search for best evidence to support the care that your patients and clients receive.
- These skills involve;
  - summarising and interpreting the content of the article,
  - questioning statements made by the researcher,
  - commenting on methods supported by literature,
  - assessing whether the research methods and analysis used by the researcher are appropriate and well conducted.
- This section brings together, and adds to, the critical reading tips given in previous sections. **This process should be used when you undertake your critique of a research article for your coursework.**



## Checklist for critiquing a research article



### Definition of critique is:

" An objective, critical, and balanced appraisal of a research report."  
(Polit and Beck, 2006; p498.)

To produce a critique as defined by Polit and Beck (2006), throughout the process of systematically critiquing a research article, it is necessary to justify comments and appraisal of each stage in order to demonstrate understanding. Therefore it is important to use literature at each stage to evidence understanding. This 'checklist' can act as a guide or framework to ensure each stage of the research process is systematically appraised, however its application must be supported by appropriate literature throughout.

### 1. What is the research about?

- Comment on the extent to which the title reflects the content of the study.
- Comment on whether the abstract provides a full summary of the article content and the impact this has on the paper.
- State in your own words the study question/aim/objectives of the study, and for some quantitative papers only, the study hypothesis.

### 2. Literature Review

- Summarise the literature reviewed by the author(s) to determine whether they have given a comprehensive overview of previous research, using a range of sources.
- Comment on the relevance of the literature. (Remember that older literature is acceptable when it is related to policy or a 'seminal' study - i.e. the classic study on a particular topic).
- Explain to what extent the author(s) have shown why this literature cannot answer their research question.

### 3. Research design

- Describe the research perspective (qualitative, quantitative or mixed) and design/approach (e.g. RCT, survey, ethnography, phenomenology, etc.).
- Comment on the extent to which the author(s) justified **why** they chose this perspective and design/approach.
- Explain why their choice was appropriate or inappropriate.

### 4. Population and sample

- For both qualitative and quantitative research, summarise the sample information provided by the author to include:
  - The study population.
  - How the sample group was recruited.
  - The type of sampling strategy,
    - non-probability sampling for qualitative approach
    - probability sampling for quantitative approach
  - The sample size and response rate.
- Explain the appropriateness of these factors in relation to the research perspective utilised.

## 5. Ethical issues

- Summarise the ethical issues addressed by the author(s) and identify any ethical issues not addressed.
- Explain how the presence or absence of the ethical issues affect the study;
  - The points below can be used to assist appraisal of ethical issues.

- beneficence
- non- maleficence
- justice
- veracity
- informed consent

- ethics committee approval
- data protection
- anonymity
- confidentiality

## 6. Data collection

- Summarise the process of data collection and the methods used to collect data.
- Explain how the data collection tools were developed and tested to ensure robustness.
  - The points below can be used to assist appraisal of data collection.

### Qualitative Data

- Usually, interviews, focus groups, observation, diaries, historical data.

The authors need to explain in detail how they collected the data:

- How were the data collection tool (interview semi-structure, focus group topics, observation guide etc.) developed?
- Where/when/how data collection occurred and how these all impact upon the participants and the credibility of the data generated.
- How do the researchers themselves influence participants and the data which is generated?
- Member checking of raw data (was it taken back to the participants for verification?).

### Quantitative Data

- Usually questionnaires, scales, physiological measures.

The authors need to explain in detail how they collected the data:

- What tools have been used to collect the data?
- Have the authors shown them to be valid (measure what they are supposed to measure) and reliable (consistent over time)?
- If it is a person or machine obtaining the data has this been shown to have inter-rater reliability between each assessment?
- Are interventions shown to be consistent for each participant?



## 7. Data analysis

- Summarise the process of data analysis.
- Explain how the author(s) analysed their data and discuss the appropriateness to the research approach.
  - The points below can be used to assist appraisal of data analysis.

<u>Qualitative approach</u>	<u>Quantitative approach</u>
<ul style="list-style-type: none"><li>• Usually content or thematic analysis</li><li>• Did the author(s) show in detail the process that occurred to get to the final categories (auditability)?</li><li>• Did the author(s) show the categories or themes by using participant dialogue (quotes) or field notes to represent the themes (credibility)?</li><li>• Did more than one researcher analyse the data (peer review)?</li><li>• How does all this affect the findings?</li></ul>	<ul style="list-style-type: none"><li>• Usually descriptive &amp; inferential statistics</li><li>• What statistical tests did the researcher use?</li><li>• Did the researcher explain why they used descriptive and/or inferential statistics?</li><li>• Did they explain which tests they used and the relevance to the data?</li><li>• Are the tables and graphs easy to understand and well explained?</li><li>• How does this affect the validity of the results?</li></ul>

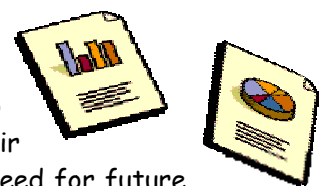
## 8. Results / Findings

- Summarise the results / findings in your own words.
- Explain if the authors have displayed result / findings according to the approach used.
  - The points below can be used to assist appraisal of data analysis
- Quantitative - percentages, p. values, bar charts and graphs.
- Qualitative - narratives and verbatim quotes / field notes.



## 9. Discussion issues

- Summarise the key discussion points including the extent to which the author(s) discussed their findings in relation to other research and their own original aims; limitations of their study and what are they; recommendations for practice the need for future research and what form it should take.
- Comment on whether the findings are transferable (qualitative) or generalisable (quantitative).



#### **A24 - Learning activity - Reflection**

Using the articles by Lou et al (2007) and Enns & Gregory (2007) look back at your critique of each part of these research studies which you undertook in the different sections of the workbook.

Now go through the critique checklist in this section and add anything that you have missed.

**\*Directed Reading: Assessing the quality of research evidence**



\*Clifford, C. (1997) *Qualitative research methodology in nursing and healthcare*. Churchill Livingstone: Edinburgh.

\*Cluett, E.R., and Bluff, R. eds. (2006) *Principles and practice of research in midwifery*. 2<sup>nd</sup> ed. Baillière Tindall: Edinburgh. (Chapter 11)

\*Enns, C., & Gregory, D., (2007) Lamentation and loss : expressions of caring by contemporary surgical nurses, *Journal of Advanced Nursing*, Vol. 58 (4), pp. 339-347.

\*Gerrish, K. and Lacey, A. Eds. (2006) *The research process in nursing* (5<sup>th</sup> ed.) Blackwell Publishing: Oxford. (Chapter 8)

\*Lou, M.-F., Dai Y.-T., Huang, G.-S., Yu, P.-J (2007) Nutritional status and health outcomes for older people with dementia living in institutions *Journal of Advanced Nursing* 60(5), 470-477

\*Parahoo, K. (2006) *Nursing research: principles, process and issues*. Palgrave MacMillan: Houndmills. (Chapter 17).

\*Polit, D.F. and Beck C.T. (2006) *Essentials of Nursing Research - Methods, Appraisal and Utilization*, 6<sup>th</sup> ed. Lippincott, Williams & Wilkins: London (Chapter 17)

\*Rees, C. (2003) *An introduction to research for midwives*. 2<sup>nd</sup> Ed. Books for Midwives Press: Hale. (Chapter 5).

## Dissemination and utilisation of research evidence for practice

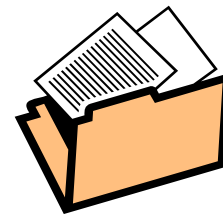
### Learning outcomes

After completion of this section of the workbook and following a period of reflection you will be able to:

- Discuss why we need research in health care.
- Define the terms dissemination and utilisation.
- State methods of dissemination.
- Identify reasons why research is not more fully utilised.
- Consider areas in practice which would benefit from research.

### Fact File

*'Nursing should become a research-based profession. A sense of the need for research should become part of the mental equipment of every practising nurse or midwife.'* (Briggs, 1972, pp.16).



Over 37 years since this quote was written, this issue remains important within today's health care service. There are many reasons why research evidence is important for health care.

### Why do we need research evidence in health care?

- To develop a body of knowledge which we can use to support and guide our practice.
  - To develop and improve practice.
  - To improve client care.
  - To improve patient experiences in illness and health care.
  - To prevent unnecessary practices.
  - To aid health professionals' decision-making.
  - To abide by NMC professional obligations for nurses and midwives.
  - To ensure consistency in quality of care.
  - To have equity on resources.
- 
- **There is a wealth of evidence** regarding patient issues, management of the health service, education of staff and patients and evaluation of nursing and midwifery care. Unfortunately, much of this remains unused.

**RCN (1996) introduces the concept of clinical effectiveness** as multi-faceted and covering a range of activities. They define this as:

"The application of the best available knowledge, derived from research, clinical expertise and patient preferences, to achieve optimum processes and outcomes of care for patients." (RCN, 1996; pp.28)

## A25 - Learning activity - Where to source research evidence for practice

As the demand for information increases we must use different sources to assist us in locating information. A list of useful sources is given below. Take the time to familiarise yourself with some of these.

- **Websites** - a list of the most popular sites for up-to-date health and health professional care is in **Appendix 3**
- **Professional journals** i.e. Evidence-based Nursing, Evidence-based Mental Health or Evidence-based Midwifery regularly report valuable clinical based research.
- **Check out your professional organisation** - The RCN or RCM have excellent facilities in London and Edinburgh which you can access through the internet or by phone.
- **NHS Health Scotland** has a small library and online facility with a particular focus on health improvement and public health updates. This is located at: [www.healthscotland.com/resources/library/index.aspx](http://www.healthscotland.com/resources/library/index.aspx)
- **NHS Quality Improvement Scotland** has developed Best Practice Statements for several important clinical issues. These can be found at <http://www.nhshealthquality.org> using the 'Publications Quickfind' drop down menu on the right hand side.
- Contact the **Research and Development Officer in your NHS Board** who can provide information on research issues including implementation initiatives such as journal clubs, research link nurses in clinical areas or local networking groups

Research is a valuable source of evidence on which to develop clinical effectiveness with the ultimate aim of improving client care. To be able to get appropriate evidence it is important that this information is in the public domain. Once research has been conducted it is the duty of the researcher to disseminate their research findings for use. Dissemination is a term you will come across when appraising your research evidence.

The definition for dissemination is:

"to spread widely" (Hawker & Elliot, 2005, pp.221)

Dissemination in the context of health care information is distribution and sharing of research. Listed on the next page are the many ways in which research can be disseminated.

<u>Methods of dissemination</u>		
Journals Websites Research Databases Lectures Action learning Sets	Conference papers Conference presentations Conference posters Poster presentations Practice development units	Media Radio TV Books Protocols



**A26 - Learning activity - Dissemination of research**

Clearly, there are many methods of dissemination for research, however, each method does have advantages and disadvantages. Listed below are methods of dissemination.

- Think of the strengths and a weakness for each of these methods.
- How does this affect their utility for evidence based practice?

Method	Strengths	Weaknesses
Journals		
Websites		
Research Databases		
Lectures		
Conference papers		
Conference posters		
Media		
Radio		
TV		
Books		
Protocols		

When using new research evidence in practice all healthcare practitioners need to address the following questions;

- What evidence do I use to ensure my practice is best practice?
- How can I involve patients / families in making choices about their care?
- How do I update my knowledge and practice?
- How do I evaluate the care that I provide?

The use of clinical guidelines is one way in which health professionals can ensure that practice is up to date. They contribute to implementation of research evidence in three ways:

- Provide knowledge about effective care options to use for patients.
- Outline a course of interventions that can act as a blue print for care.
- Provide a baseline against which practice can be measured.

Once the health care professional knows where to look for evidence and has critically reviewed it, the next issue they should address is: "How can I use research in a practical and useful way?" The research terminology for using research in practice is utilisation.

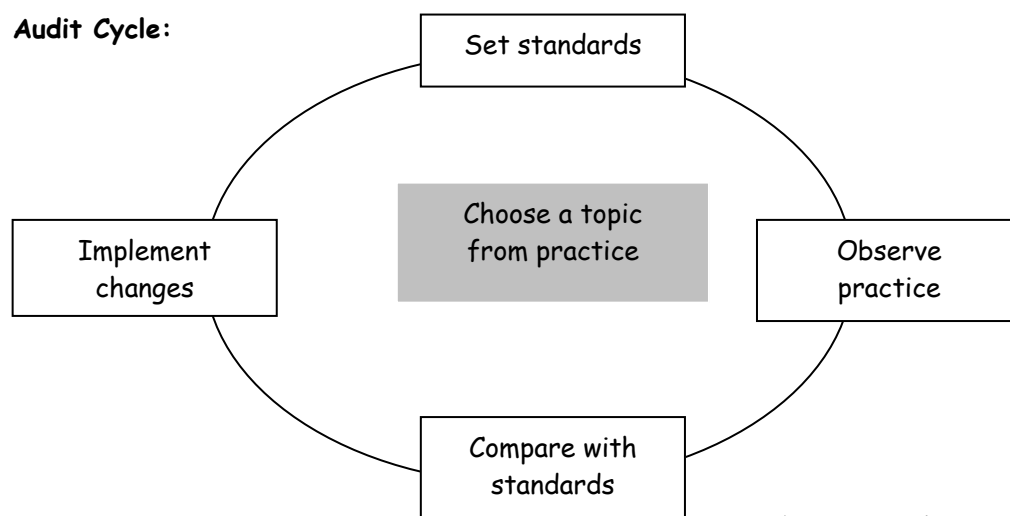
In the healthcare context, the definition of research utilisation is:

*"the transfer of knowledge generated by research to clinical practice"*  
(Parahoo, 2006, pp.416)

As health care professionals you use evidence in practice many times throughout your working day without even realising it. Some of the main methods you use are:

- **Protocols:** Produced and implemented on the basis of research evidence. As research evidence advances, these protocols have to be frequently updated.
- **Guidelines:** These form the basis of clinical guidelines that are used to ensure safe practice within your health care environment. SIGN guidelines are developed in Scotland.
- **Standards:** A standard is a statement about how practice should be delivered and they are measurable through audit.
- **Audit:** Audits can monitor standards when new research findings have been introduced or there has been a change in practice.

**Audit Cycle:**



(Dawes et al, 2005, p.242)

The implementation of research findings into practice is also used in the same context as utilisation and you may see either words used in the text books and papers. It is not only important that healthcare professionals are able to use research in practice. It is also vital that you know where to access research, how to assess the quality of the research and determine its relevance to practice. However, it is known that there is a lot of research evidence that is not used in practice. Listed below are reasons why this occurs.

**Reasons why nursing & midwifery research evidence is not utilised.**

- 1 They don't *know* about research findings.
- 2 They don't *understand* research findings
- 3 They don't *believe* research findings.
- 4 They don't *know how to use* research findings.
- 5 They are *not allowed to use* research findings.
- 6 They believe that research is somebody else's business.

Mulhall and Le May (1999, p165 cited in Rees, 2003, p222) have expanded on the above points and produced further rationale why research is not utilised:

- **"Attitudes:** Lack of cooperation; Lack of motivation; Fear; Resistance to change / ritualised practice."
- **"Beliefs:** Research will not make a difference; Research data are not appropriate; Conviction that current practice is OK."
- **"Professional Relationships:** Medical staff block implementation; Medical staff consider nursing research substandard; Nursing colleagues are uncooperative; senior staff are resistant to change."
- **"Educational Issues:** unable to access research; Lack the skills in critical appraisal; The language of research makes it inaccessible; location of libraries; Theory-practice gap."
- **"Organisational Issues:** Time; Pressure of workload; Too much change."

Now that you know the barriers and problems related to utilisation of research, what factors are thought to be helpful in enabling the implementation of research to practice?

- Confidence and ability to manage change.
- Opportunities to share information.
- Support throughout the process.

(Proctor & Renfrew, 2000, p189)



### **A27 - Learning activity - Developing practice from research-based evidence**

1. Think of your own practice area or a recent placement. List the types of activities which you think could be developed or improved by implementing research findings.

2. Select one of the above and find out what research has been carried out on this topic within the last year. Use one of the library databases e.g. CINAHL and check the Cochrane Library for any systematic reviews which may have been conducted on the topic.

Choose one research article and write the full reference below using the School guidelines (see Appendix 2) and give a brief summary of the main findings (5-6 bullet points).

Reference in full (Harvard style)

Summary of findings

3. Now state ways in which you think this is different from how the activity is practised in your practice area.

4. Identify 3 ways in which you could implement this research into practice.

**Utilisation of research in practice: Who is responsible for it?**

Using research in health care practice is not always easy and this chapter has clearly identified the many barriers associated with implementation. However, there are also political and social issues that have to be addressed. Every health care professional practicing within the health care sector is responsible for utilisation of research evidence. However the following points are necessary for a supportive environment for utilization of research evidence.

- Staff educated on the relevance and importance of research.
- Supportive clinical environment to allow staff to change practice.
- Managers who are supportive of staff and staff autonomy.
- Culture where research is valued.
- Non-threatening environment where staff can question practice.
- Local Research Practice and Development Units.
- Staff given time to participate in audit and research.
- Explicitly identified role models – researchers and clinicians.
- Shared vision of what research is.

In the ever advancing health care sector it is important that health care professionals, clients and organisations work together to change practice through the implementation of research evidence. It is therefore important that we have a shared vision and all sing the same tune.



## In - text references : Dissemination and utilisation of research evidence for practice

Briggs, A. (1972) *The report on nursing, midwifery and health visiting*, HMSO: London.



\*Dawes, M., Davies, P., Gray, A., Mant, J., Seers, K., Snowball, R., eds. (2005) *Evidence-based practice: a primer for health care professionals*. 2<sup>nd</sup> ed. Churchill Livingstone: Edinburgh. (Chapters 17 & 18)

Mulhall, A. and Le May, A. Eds (1999) *Nursing research Dissemination and implementation*, P 222, cited in Rees, C. (2003) *An introduction to research for midwives*. 2<sup>nd</sup> Edn. Churchill Livingstone: Edinburgh.

\*Parahoo, K. (2006) *Nursing research: principles, process and issues*. Palgrave MacMillan: Houndmills. (Chapter 18).

Hawker, S. and Elliot, J. (2005) *The Oxford Paperback Dictionary*, Oxford University Press, Oxford.

\*Proctor, S. and Renfrew, M. (eds.) (2000) *Linking research and practice in midwifery: A guide to evidence-based practice*. Baillière Tindall: London

Royal College of Nursing (1996) *The royal college of nursing clinical effectiveness initiative - A strategic framework*, RCN: London.

---

### Further Reading and \*Directed Reading

Cochrane Database of Systematic Reviews can be found on the A-Z database list of the library webpage. [online] Available from <http://www.gcal.ac.uk/library/resources/database.html> [Accessed: 11th January, 2008].

\*Craig, J.V., and Smyth, R.L., Eds. (2007) *The Evidence-based practice manual*. Churchill Livingstone: Edinburgh. (Section 3).

Critical Appraisal Skills Programme. (CASP) (2002) *Evidence-based health care*. CASP: Milton Keynes. (Book 4 - Acting on the evidence & Book 5 - Evaluation and reflection).

\*Melnyk, B.M. and Fineout-Overholt, E. (2005) *Evidence-based practice in nursing & healthcare*, Lippincott Williams & Wilkins: Philadelphia: (Chapters 14, 15, 16 & 17).

Neale J (2009) *Research Methods for Health and Social Care*. Palgrave, Oxford (Chapter 20).

\*Polit, D.F. and Beck C.T. (2006) *Essentials of Nursing Research - Methods, Appraisal and Utilization*, 6<sup>th</sup> ed. Lippincott, Williams & Wilkins: London (Chapter 18)

## Appendix 1

### Glossary Of Terms Commonly Used In Research

<b>Abstract</b>	Displayed at the beginning of a research paper or review, informing the reader of a summary or overview of the main points of the whole article.
<b>Analysis</b>	Examination of data by placing it in categories and applying statistical or interpretative procedures.
<b>Anonymity</b>	An ethical principle that ensures that study participants are not able to be identified. The researcher can prevent this by using codes or pseudonyms instead of the participants real name.
<b>Auditability</b>	Term used in qualitative research. Auditability is achieved when the researcher gives a clear account of the research process to allow the reader to assess whether the project is dependable. <i>See decision trail.</i>
<b>Bias</b>	Any influence that produces a distortion in the results of a study.
<b>Beneficence</b>	An ethical principle that requires that the research should <b><i>benefit</i></b> the subjects of the study and society at large.
<b>Coercion</b>	The use of threats (or excessive rewards) to get people to agree to participate in a study. They can either be explicit or implicit.
<b>Cohort</b>	An identified group of subjects who are being studied over a period of time.
<b>Confidentiality</b>	An ethical principle that requires that all aspects of the study and details of the participants must be kept <b><i>confidential</i></b> during and after the study, in accordance with the agreement reached with the participants.
<b>Confirmability</b>	Term used in qualitative research to evaluate the objectivity or neutrality of data. This is where the researcher has demonstrated that they have remained impartial and unbiased while undertaking the study. <i>See also trustworthiness.</i>
<b>Confounding variable</b>	A variable that can influence the outcome of the study results but is unknown to the researcher and is outwith the researchers' control (it is neither the dependant nor the independent variable).
<b>Credibility</b>	Term used in qualitative research to evaluate the truth of the data. <i>See also trustworthiness.</i>
<b>Data</b>	Specific information gathered in the course of a research project.
<b>Decision trail</b>	Term used in qualitative research. Allows the reader to follow the progression of events in a study and understand the underlying logic (can also be known as an audit trail).
<b>Demographic data</b>	Information about the characteristics of the human population.

<b>Dependability</b>	Qualitative equivalent to reliability in quantitative research. It is associated with the accuracy and stability of data over time and conditions. <i>See also auditability / decision trail.</i>
<b>Dependent variable</b>	The outcome variable of interest; the variable that is hypothesised to depend on or be caused by another variable (called the independent variable).
<b>Descriptive statistics</b>	Statistics used to describe and summarise data e.g. mean or standard deviation.
<b>Dissemination</b>	Distribution and sharing of research. This can be done through journals, web sites, books etc.
<b>Ethnography</b>	A study of human behaviour and the way in which it is influenced or mediated by the culture in which it takes place. Used in qualitative research
<b>Evidence-based practice</b>	Practice-based on the most valid and reliable research findings, the judgement and experience of practitioners, and the views of clients.
<b>Fidelity</b>	An ethical principle that requires that the researcher should ensure that the well-being of the participants is safeguarded and <i>their interests</i> are put before the needs of study.
<b>Fittingness</b>	Used in qualitative research where the findings can fit into context out with the study situation and when its audience views its findings as meaningful and applicable in terms of their own experience.
<b>Generalisability</b>	Used in quantitative research and is the degree to which it can be inferred that the results from a study can be generalised from a sample to a population.
<b>Grounded theory</b>	A qualitative approach to data collection and analysis. From concepts and hypothesis' it achieves theory development.
<b>Hypothesis</b>	A statement of predicted relationships between variable under investigation. A study may seek to support or reject the prediction. <i>See also null hypothesis.</i>
<b>Independent variable</b>	The variable that is believed to cause or influence the dependent variable.
<b>Inferential statistics</b>	Statistics that allow inferences on whether relationships seen from the data within a sample are likely to occur in the population.
<b>Interview: semi-structured</b>	An interview that is conducted by means of set questions but which allows for some flexibility either in the question or in the range of responses.
<b>Interview: structured</b>	An interview that is conducted by means of set questions with a predetermined range of possible responses.
<b>Interview: unstructured</b>	An interview that allows for spontaneous questions and/or free responses. Generally begins with one question on the topic under investigation.
<b>Justice</b>	An ethical principle that involves <i>fairness and equal treatment</i> to participants - ensuring that the needs of the participants take precedence over the needs of the research project.

<b>Meta-analysis</b>	Combining and integration of quantitative data from multiple studies on a topic to enhance the reliability and validity of the results.
<b>Non-maleficence</b>	An ethical principle that requires that the research should <i>not cause harm</i> to the subject
<b>Null hypothesis</b>	A statement which predicts there will be no significant differences between the variables under investigation.
<b>Operational Definition</b>	The definition of a concept or variable used in the study.
<b>Phenomenology</b>	A qualitative research approach which roots are in philosophy and psychology. It sets out to discover the lived experience of the individual.
<b>Phenomenon</b>	Anything that occurs about which curiosity is aroused.
<b>Pilot study</b>	Preliminary study intended to test the proposed method for a main study.
<b>Population</b>	The total number of people meeting the requirements for inclusion in the study.
<b>Probability sampling</b>	The selection of participants from a population using random procedures.
<b>Questionnaire</b>	A method of gathering information / data from respondents through administration of questions in a written format.
<b>Reliability</b>	Concerned with consistency and replicability, i.e. the research methods used will always give the same answer over time, across groups and by whoever is administering them.
<b>Representative sample</b>	A sample whose characteristics are highly similar to those of the population from which it is drawn. Fulfils one of the main aims of quantitative research approaches, to generalise from the findings.
<b>Research instrument / tool</b>	The device or technique used to collect data, e.g. questionnaires, tests, interview schedules, observation schedules.
<b>Research proposal</b>	A document specifying what the researcher intends to do in a study.
<b>Review of the literature</b>	A critical summary of research on a topic of interest.
<b>Rigour</b>	This is the extent to which a researcher has ensured that the study has been carried out to high standards and that they have used a thorough process when undertaking the study. It addresses issues such as reliability, validity, trustworthiness and credibility etc.
<b>Sample</b>	A selected proportion of the population.
<b>Sampling Frame</b>	The sampling frame refers to the source from which researchers obtain their participants. The limitations of the sampling frame will almost always impact upon the research study. For example, if researchers investigating teenage smoking behaviours recruit their participants from schools (= sampling frame), they will miss out teens aged 17-19 who are not at school, teens who are excluded from school etc.

<b>Sampling Strategy</b>	This describes the way in which data are chosen, for example, how people in the sampling frame are actually selected and will also refer to the type of sampling used, e.g. simple random sampling, convenience sampling etc.
<b>Survey</b>	A research design which aims to obtain descriptive and correlational data, usually from large populations, using questionnaires or interviews.
<b>Systematic review</b>	A review of the literature, in which all available research studies on a particular topic are identified, analysed and synthesised.
<b>Thick description</b>	A rich and thorough description of the research context in a qualitative study.
<b>Transferability</b>	A qualitative term used as the equivalent to generalisability in quantitative research. It is the ability to be able to transfer the findings from one study into another setting.
<b>Triangulation</b>	Triangulation describes when researchers combine several methods of data collection to (e.g. interviews, observation, questionnaires) to enhance the rigour of their study.
<b>Trustworthiness</b>	A term used in the evaluation of qualitative data using the criteria of credibility, transferability, dependability and confirmability.
<b>Utilisation</b>	Using research in a practical and useful way. Applying research findings to practice.
<b>Validity</b>	The extent to which a test, questionnaire or schedule really measures what the researcher intends to measure.
<b>Variable</b>	A characteristic or attribute of a person or object that varies within the population under study, e.g. body temperature, age, heart rate etc.
<b>Veracity</b>	An ethical principle that requires that the researcher must always tell the <i>truth</i> to participants, even if this means that they may choose to withdraw from the study.



**SCHOOL OF HEALTH**

**Brief Guide to Construction and Citation of References.**

**Contents**

<b>1.0</b>	<b>Introduction</b>	<b>Page 2</b>
<b>2.0</b>	<b>Text Citation</b>	<b>Page 3</b>
<b>3.0</b>	<b>How to Construct a Reference List</b>	<b>Page 5</b>
<b>4.0</b>	<b>Referencing Electronic Material</b>	<b>Page 8</b>
<b>5.0</b>	<b>Copyright</b>	<b>Page 10</b>



**GLASGOW CALEDONIAN UNIVERSITY  
SCHOOL OF HEALTH**

**Guide to Construction and Citation of References.**

In academic work, it is essential that the work of others is acknowledged. When citing other peoples' comments, reference is made to that in both the text and in a reference list at the end of the end of the essay/ document. This enables others who read your work to follow up on references in which they may be interested. The School of Health uses the Harvard system, the most widely used citation system in academia. This guide aligns with both Refworks and with the system used by the University's Effective Learning Service. Other versions of Harvard do exist and so students are advised to ensure that the system in this document is followed.

## **1. Introduction**

For essays, assignments and or reports students are expected to:

- Make references to specific sources to justify statements or arguments in the text. You must always acknowledge the source when you refer to the work of another. All sources should be cited whether the work is directly quoted or where you have paraphrased, summarised or used attributed arguments to support your discussion. Diagrams or illustrations must also be referenced appropriately. Failure to acknowledge your source(s) whether it is deliberate or unintentional amounts to Plagiarism which is a very serious offence. Students are referred to the University Assessment Regulations <http://www.gcu.ac.uk/student/about/regulations/index.html> .
- Provide a reference list at the end of the text. The Reference list should contain all references cited in the text. This is different to a Bibliography, where other material that has been read, excluding the material acknowledged in the reference list, is listed. You should be consistent and accurate when referencing both in the text and in the reference list (e.g. author, date etc.). The Harvard system of referencing is the system used in the School of Health. However, students in other Departments may be asked to use the numerical system (Vancouver) for Final Year Projects which are written in 'paper' format. Students must check with their Studies Advisor what reference system is to be used for their Final Year Project. Do not assume which system you must use, please check.
- Students should not reference 'Handouts' provided in class. You should reference the primary source of the information if provided by your tutor or use the texts and articles recommended to you.

### **1.1 Definitions**

Authors- The person or persons who authored the material should be noted (or corporate body or organisation if relevant). For anonymous work (where author's name is unknown) use 'Anon' instead of the author's surname. Where a number of individuals have been involved but no single person or persons have clear ownership for the source then the 'Title' may be used instead of the authors' names e.g. Dictionaries.

Dates- Specific date of publication must always be noted. The exceptions to this are when only an approximate date is known then 'ca' before the date in square brackets may be used or if no date is known, then 'no date' in square brackets should be stated.

### **1.2 Primary and Secondary Sources**

Information may be obtained from either a:

- Primary source- refers to written work by the original author, e.g. a study you read firsthand in a journal.
- or
- Secondary source- refers to what someone else says about the original author e.g. a study that you read about in a textbook or where an author in a journal refers to another study. You should avoid relying on secondary sources and read primary sources wherever possible. Secondary sourcing should only be used where it is difficult to locate the primary source and where you are confident that the secondary source author has represented the original author accurately.

## **2.0 Text Citation**

### **2.1 Primary Sources**

If details taken directly from a particular part of a document are being used then the page number must follow the date in parenthesis.

e.g. The details of weather patterns stated in Paterson (2001, p.56) ....

If the author's name occurs naturally within a sentence, then year of publication follows in brackets without repeating the author's surname. First name or initials are not included in the text.

e.g. As stated in Paterson (2001) the weather.....

If author's surname does not occur naturally, then surname and date of publication must be stated.

e.g. The results of a recent study (Paterson, 2001) identified ....

If there are two authors, both names should be stated.

e.g. As stated in Paterson and Smith (2001), the weather.....

e.g. As the results of a recent study identified..... (Paterson & Smith, 2001)

(N.B. Use 'and' if the citation is part of the sentence as above, but use ampersand (&) if the text citation is in brackets and also at the end in the reference list.)

When referencing within the body of the text: if there are more than two authors then 'et al.' (which means 'and others') should be used after the first author's name. However, a full listing of names should appear in the reference section at the back; if there are more than 6 authors then, in the reference list, use et al. after the sixth author.

e.g. The proportion of people studying health programmes at Glasgow Caledonian has been identified as ..... (Johnston et al, 1999).

If citing multiple sources, these should be listed in chronological order within the same brackets, with the earliest source cited first. The sources should be separated by semi-colons.

e.g. Some patients with schizophrenia demonstrate post-morbid impairments in mentalising capacity (Frith & Corcoran, 1996; Corcoran et al, 1997; Pickup & Frith, 2001).

When citing more than one work by the same author(s) published in the same year, then add a lower case letter after the year to distinguish the sources.

e.g. The results of a recent study (Jones, 2005a) support the earlier findings which stated ...(Jones, 2005b).

e.g. As stated recently by Jones (2005a) people .....however this differs from Jones' (2005b) previous publication which identified.....

N.B. This does not refer to the number of times you mention the same source in an essay. It should only be used if you have more than one source from the same author(s) in the same year.

You should not put a web address or URL (e.g. [www.scottishexecutive.org.uk](http://www.scottishexecutive.org.uk)) as a text citation. State the author and date of the source only. If the author is a corporate body or organisation then cite the appropriate name and date (e.g. Scottish Executive, 2006).

If there is a need to be more specific, include the page number.

e.g. The definitions listed in Stewart (1998, p.234) explain exactly how...

If citing material lifted directly from a source the quote should be placed inside quotation marks in the text and the reference should include the page number.

e.g. "....." (Jeans, 2004, p.25)

In addition, direct quotes which extend beyond a single line should appear indented on a new line with single line spacing used. The remainder of the text will generally be 1.5 line spacing.

e.g. The need to develop social service workers was recently noted;

“...employers of social service workers are committed to promoting practice-based learning and continuing professional development.” (Scottish Executive, 2004, p.9)

Personal communications, which are rarely an appropriate source in academic work, should be referenced as follows;

e.g. The replacement of all computers will take place next year according to K. Gray (Personal communication, July 5<sup>th</sup>, 2004).

## 2.2 Secondary Sources

When referring to a source quoted in another source then both must be cited in the text, but only the publication you read is cited in the reference list.

e.g. A study by Miles (1978 cited in Paterson, 2005) demonstrated...

Miles, as cited in Paterson (2005), demonstrated...

## 2.3 Use of Diagrams or illustrations

Diagrams, graphs, tables, illustrations etc., if directly quoted, must be referenced in the same way as a direct quote in the text. If you produce a table or diagram of your own but it is adapted from the work of another you must state in the reference after the diagram:

e.g. (Adapted from Smith, 2005, p.24, table 42)

e.g. Only 50% of patients were in hospital for 10 or more days (National Statistics Office 1985 cited in Amazon, 2005, p. 267).

## 3.0 How to Construct a Reference List

In the Harvard system, references are listed in alphabetical order of authors' names. When including a number of publications by the same author, these are listed in chronological order, most recent first, and by letter if more than one publication by the same author in a single year.

e.g. Albert, H. 2001, *Housing across the ages*, 3<sup>rd</sup> edn, Longman, Edinburgh.

Holly, B. 1999, *Historic buildings in Scotland*, HMSO, Edinburgh.

Piston, G. 2002, Stress levels in students, *British Medical Journal*, 2(1), 87-98.

Smith, P. 2005a, *Living in Glasgow*, 3<sup>rd</sup> edn, Longman, Edinburgh.

Smith, P. 2005b, *Healthy living*, Longman, Edinburgh.

## 3.1 Books with Personal Authors

Author's Surname, Initials. Year of publication, *Title*, edition (if not first edition), Publisher, Place of Publication.

e.g. If One Author:

Conn, P.M. 1995, *Neuroscience in medicine*, Lippincott, Philadelphia.

Downie, G. 2008, *Pharmacology and medicines management for nurses*, 4th edn, Churchill Livingstone, Edinburgh.

Smith, P. 2005, *Living in Glasgow*, 3<sup>rd</sup> edn, Longman, Edinburgh.

e.g. If Two Authors:

Baxter, C. & Royal College of Nursing. 2001, *Managing diversity and inequality in health care*, Bailliere Tindall, published in association with the Royal College of Nursing, Edinburgh, New York.

Smith, P. & Jones, K. 2005, *Living in Glasgow*, 3<sup>rd</sup> edn, Longman, Edinburgh.

e.g. More than six Authors:

Tolson, D., Nolan, M., Ferguson, D., Brown, J., Begley, P., Cole, S., et al. 2010, *Partnership in practice project. Developing an intervention to promote partnerships between cared for individuals, family carers and community nurses*. Glasgow Caledonian University, Glasgow.

### 3.2 Reference to a Contribution in a Book

Contributing Author's Surname(s), Initials. Year of publication, "Title of contribution." in: *Title of book*, Initials, Surname of author or editor of source publication, Publisher, Place of Publication, pp. Page numbers of contribution.

e.g. Ferguson, D. 2008, "Rehabilitation." in: *Occupational Health Nursing*, ed. K. Oakley, 2<sup>nd</sup> edn, Wiley, Chichester, pp. 253 -270.

e.g., Bell, J. 2005, "Doing your research project : a guide for first-time researchers in education, health and social science" in *The big book of research*, ed. A. Smith, 4<sup>th</sup> edn, Open University Press, Buckingham, pp. 267-280.

### 3.3 References to Journal Articles

Author's Surname(s), Initials. Year of Publication, "Title of article", *Journal Title*, Volume Number, Part Number, pp. Page numbers.

e.g. Austin, S. 2008, "Safer demands smarter: the evolution of workplace training", *Occupational Hazards*, vol. 70, no. 8, pp. 51.

Piston, G. 2002, "Stress levels in students", *British Medical Journal*, vol. 2, no. 1, pp. 87-98.

### 3.4 Reference to a Conference Paper

Authorship, Year, "Full title of conference paper", followed by *Full title of conference*, Editor or name of organisation, Location, Date, Publisher, Place of publication, pages of paper pp.

e.g. Bennett, S., Lockyer, L. & Agostinho, S. 2004, "Investigating how learning designs can be used as a framework to incorporate learning objects", *Beyond the comfort zone: Proceedings of the 21st ASCILITE conference*, eds. R. Atkinson, C. McBeath, D. Jonas-Dwyer & R. Phillips, Perth, 5-8 December, pp. 116.

Oliver, R. 2002, "Winning the toss and electing to bat: maximising the opportunities of online learning", *Proceedings of the 9th improving student learning conference*, ed. C. Rust, Oxford, pp. 35.

Sharpe, R., Beetham, H. & Ravenscroft, A. 2003, "Using active representations of knowledge to support tutors to change their practice", *8th Annual SEDA conference*.

### 3.5 Reference to a Newspaper Article

Author's Surname(s), Initials. Year, Title of article, *Full title of Newspaper*, Month and day, before the page number of the article.

e.g. Brown, A. 1995, The health of the nation in crisis, *Scotland on Sunday*, June 4 p.5.

Regeneration 'continuing'. 2008, *The Plymouth Evening Herald*. Jul 18, p. 4.

Helen, R. A. E. 2008, Fit for the festivities. *Evening Chronicle*. Dec 1, p. 2.

### 3.6 Reference to a Publication from a Corporate Body (Government Department or Organisation)

Name of Issuing Body may be part of the title. Year, Title of publication, in italics if a separate element. Report Number in brackets if relevant, Publisher, Place of publication.

- e.g. Great Britain. Department of Health. Medical Devices Agency. 2002, *Guidance on the sale, transfer of ownership and disposal of used medical devices : supplement to 'Medical Device and Equipment Management for Hospital and Community-based Organisations' (DB9801)*, HMSO, London.
- Manson-Smith, D. & Scottish Consumer Council. 2008, *The legal system of Scotland*, 4th edn, HMSO, Edinburgh Scotland.
- Royal Commission on civil liberty. 1966, (Black Report) (Comnd. 4879) HMSO, London.
- Scottish Executive. 2000, *Allied Health Professions now and into the future*. HMSO, Edinburgh.
- World Health Organisation. 2005, *Voluntary Projects in East Africa*. (FK3- 2678459) HMSO, Geneva.

### 3.7 Reference to a Thesis

Author's Surname, Initials. Year of publication, Title of Thesis, Name of institution to which the thesis was submitted.

- e.g. Singleton, K. 2010, *The functional characterisation of the acidic domain of N-Arginine Dibasic Convertase*, Glasgow Caledonian University.
- Wood, B.M. 2009, *Design as an economic development enabler*, Glasgow Caledonian University.

### 3.8 Programme or Series

Series title, the number and title of the episode should be given as well, the transmitting organisation, the channel, the full date and time of transmission.

- e.g. Disco, Episode 54, Who shot DJ (1982) TV, BBC1. 1982, September 15<sup>th</sup> 19.30 hrs.

Individual contributions within a programme should be cited as contributors.

- e.g. Blair, Tony (2001) Interview, In: Tonight. TV, BBC2. 2001, March 21<sup>st</sup> 23.00 hrs.

### 3.9 Unpublished works

You may occasionally have access to a document before it is published and will therefore not be able to provide full details:

- e.g. Bloggs, J. (in press) *A new book that I have written*, Vanity, London.

### 3.10 Personal Communications

When referring to a more informal personal communication such as a letter or phone call, you should provide as much detail as possible. You must ask for permission from the source before using the material.

- e.g. Smith, D. 2007, *Accessing practice education in rural areas*. (Letter)  
(Personal communication, 16<sup>th</sup> October 2007)

### 3.11 Acts of Parliament

Short title, in italics, with Key words capitalized, which includes the year followed by the chapter number in brackets. Key words of titles are capitalized. Place of publication: Publisher

- e.g. The Scottish Government 2004, *Higher Education Act*, HMSO, Scotland  
Edinburgh.

For Acts prior to 1963, the regal year and parliamentary session are included:

- e.g. *Road Transport Lighting Act 1957*, (5&6 Eliz. 2, c.51), HMSO, London.

#### 4.0 **Referencing Electronic Material**

British Standard BS 5605:1990, which details the Harvard system, does not include guidance for referencing electronic sources; however, the principles of the Harvard system have been carried into referencing these newer sources of material. The guidelines given here are based on current accepted practice.

##### 4.1 **Reference to Web Pages/sites and e-books**

Author's/Editors Surname(s), Initials. Year, Title in italics [online]. (Edition if not first edition). Publisher, Place of publication if ascertainable. Available at: URL [Accessed Date].

e.g. Daly, J. & MyiLibrary, 2005. *Professional nursing : concepts, issues, and challenges*. Springer, New York, NY. [online] Available from: <http://www.myilibrary.com?id=181155&Ref=Athens> [Accessed on 26th March 2010].

e.g. Earle, S. & Dawsonera, 2007. *Theory and research in promoting public health*. London ; Thousand Oaks Calif.; Milton Keynes England: Sage; In association with The Open University. [online] Available from: <http://www.dawsonera.com/depp/athens?url=http://www.dawsonera.com/depp/reader/protected/external/AbstractView/S9781849202299> [Accessed on 26th March 2010].

If no author is identified:

e.g. *People and Health*, 2005, [CD-ROM], Edinburgh, Gee  
Available at: [libweb.gcal.ac.uk/ E-books](http://libweb.gcal.ac.uk/E-books) [Accessed 23 October 2006]

*Library Services: Glasgow Caledonian University*. [online]. Available from: <http://www.gcal.ac.uk/library/> [Accessed 10<sup>th</sup> October 2007].

##### 4.2 **Reference to e-journals**

Author's Surname(s). Year, "Title of article", *Journal Title* [online], Volume Number Part Number, page numbers. Available from: URL [Accessed Date].

e.g. Aiken, L.H., Buchan, J., Sochalski, J., Nichols, B. & Powell, M. 2004, "Trends in international nurse migration", *Health affairs*, [Online], vol. 23, no. 3, pp. 69. Available from: <http://content.healthaffairs.org/cgi/reprint/23/3/69?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&author1=Barbara%2BNichols&searchid=1&FIRSTINDEX=0&resourcetype=HWCIT&ck=nck>. [3 February 2101].

Korb, K. B. 1995, Persons and things: book review of Bringsjord on Robot-Consciousness, *Psychology* [online], 6(15). Available from: <http://pstcprints.esc.soton.ac.uk/archive/00000462/> [Accessed 20 May 2004].

Hamill, C. 1999, Academic essay writing in the first person: a guide for undergraduates, *Nursing Standard*, [Online] 21 Jul., 13 (44), p. 38-40. Available at: [http://libweb\(anglia.ac.uk/ejournals/333](http://libweb(anglia.ac.uk/ejournals/333) [Accessed 12 June 2005].

##### 4.3 **Reference to mailbase / listserv e-mail lists**

Author's Surname, Initials. Day Month Year, "Subject of message", Discussion List [online] Available from, list e-mail address [Accessed Date].

e.g. Brack, E. V. 2 May 2004, Re: Computing short courses, *Lis-link* [online]. Available from: [jiscmail@jiscmail.ac.uk](mailto:jiscmail@jiscmail.ac.uk) [Accessed 17 June 2004].

#### 4.4 Personal Electronic Communications (e-mail)

Sender's Surname, Initials, (Sender's e-mail address), Day Month Year. "*Subject of Message*" in italics. E-Mail to Recipient's Initials. Surname in capitals (Recipient's e mail address).

e.g. Lowman, D. ([deborah\\_lowman@pbsinc.com](mailto:deborah_lowman@pbsinc.com)), 4 April 2000. *RE: Procite and Internet References*. E-Mail to P. CROSS ([pcross@bournemouth.ac.uk](mailto:pcross@bournemouth.ac.uk)).

#### 4.5 Publications available from websites

For publications found on the internet the required elements for a reference are:  
Author or corporate author, Year. Title of document (Publication number if available), [type of medium], Place of publication, Publisher (Published year).  
Available at: include web site address/URL(Uniform Resource Locator) and additional details of access, such as the routing from the home page of the source.  
N.B. the URL should be underlined [Accessed date]

e.g. Scottish Intercollegiate Guidelines. 2001, "*Hypertension in the elderly.*" (SIGN publication 20). [internet]. Edinburgh, SIGN (Published 2001).  
Available at:  
<http://www.sign.ac.uk/pdf/sign49.pdf> [Accessed 19 April 2007]

#### 4.6 Referencing CD ROMs and DVDs

This section refers to CD-ROMs which are works in their own right.

Author's Surname, Initials, Year, *Title* in italics, [type of medium], (Edition in brackets if not first edition), Place of publication, Publisher if ascertainable. Available from: Supplier/Database identifier or number (optional) [Accessed Date] (optional).

e.g. Hawking, S.,W., (1994). "*A brief history of time: an interactive adventure*" [CD-ROM]. Crunch Media.

#### 5.0 Copyright

When photocopying or downloading material you must comply with copyright regulations. Information regarding copyright can be accessed from Glasgow Caledonian Library web pages.  
<http://www.gcu.ac.uk/library/about/Copyright.html>

### Appendix 3

#### Useful Websites

The following websites provide excellent sources of health-related information. Most also link to other sites of interest. Try and familiarise yourself with them.

##### SCOTTISH SITES

- This very useful website, **Scottish Health on the Web**, is your gateway to many resources specific to Scotland <http://www.show.scot.nhs.uk/>
- The Scottish Intercollegiate Guidelines Network (**SIGN**) provides updates on best clinical practice in a large number of areas. <http://www.sign.ac.uk/>
- The **Glasgow Health Organisation** site provides information of interest about Glasgow. <http://www.ghi.org.uk/>
- NHS Education for Scotland (**NES**) is the site for educational information for all health care professionals <http://www.nes.scot.nhs.uk/>
- **NHS Quality Improvement Scotland** contains information to audit and standards and practice development. <http://www.nhshealthquality.org/>

##### UK AND WORLD WIDE

- This is the website for the **Department of Health for the UK**; it is an excellent source of UK wide policy and legislation, as well as providing good links. <http://www.doh.gov.uk/>
- **National Library for Health** is a gateway to many sources of health information. <http://www.library.nhs.uk/Default.aspx>
- National Institute for Clinical Excellence (**NICE**) is part of the National Health Service (NHS), and its role is to provide patients, health professionals and the public with authoritative, robust and reliable guidance on current "best practice" <http://www.nice.org.uk/>
- The **NHS Centre for Reviews and Dissemination** is the site to visit for access to Effective Health Care Bulletins, and databases which review the best evidence for health care practice. Its purpose is to ensure practitioners and policy makers are aware of the current research in a wide range of topic areas. <http://www.york.ac.uk/inst/crd/>
- The **Cochrane Collaboration** was established as an international body to prepare, maintain and promote the accessibility of systematic reviews of the effects of health care interventions <http://www.cochrane.org/>
- The **Joanna Briggs Institute** collaborates worldwide to promote utilisation of evidence in health care practice globally. <http://www.joannabriggs.edu.au>
- The website of the **Royal College of Nursing** provides access to online journals if you are a student member. <http://www.rcn.org.uk/>
- The **Nursing and Midwifery Council** website will give you access to all publications and policies relevant to nursing and professional practice. <http://www.nmc-uk.org/>
- The **King's Fund** is an independent charitable foundation whose goal is to improve health, especially in London. It is an excellent source of good research and health-related reports. <http://www.kingsfund.org.uk/>
- The **World Health Organisation** provides international health information. <http://www.who.int>



