Changes in the traditional, autocratic role of the doctor, combined with a better informed consumer have led to a more questioning approach to care delivery (Muir Gray, 2000). These changes demand of the health service increasing accountability, efficiency and effectiveness within available resources (Muir Gray, 2000). Therefore, those wishing to justify continued investment in current practice, or conversely, development of new innovative methods of care delivery, are expected to be explicit in their requests (Muir Gray, 2000). This explicitness has to include evidence-based material to support arguments appropriately (Muir Gray, 2000). Fundamentally, the emphasis on evidence-based practice (EBP) today has emerged due to changes in health service delivery, including greater emphasis on value for money, risk management, patient empowerment and the ever expanding role of information technology (Trinder, 2000).

The cornerstone of EBP is the integration of high-quality research evidence into clinical decision-making. This evidence is used in combination with clinical judgement and experience to plan the most appropriate patient treatment (Sackett et al., 1996). The applicability of research for clinical practice will depend on its quality (Sackett et al., 1996). Poorly conducted research will only yield poor results, which have no place in the clinical arena (Higgins and Altman, 2008b). It is argued that EBP comprises five main components: (1) identifying a clinical problem; (2) finding the evidence to answer the problem; (3) critically appraising the evidence, (4) applying the evidence to the clinical situation; and, finally, (5) evaluating the results of the intervention (Reynolds, 2000). Central to this process is the identification of research that is of sound methodological quality, and critically appraising its merits or limitations (Sackett et al., 1996).
The purpose of conducting a literature review is to identify what is known and not known about a particular subject. In doing so, the authors attempt to summarise a body of literature, however, may not summarise the entire literature pertaining to the subject (Moore and Cowman, 2008a). A systematic review aims to summarise all the evidence available, published and unpublished, pertaining to a specific healthcare issue (Moore and Cowman, 2008a). For both the literature review and the systematic review, the information gained may be used in several ways, for example to support the current methods of care delivery, to act as the basis for changes in care delivery, to justify the need for investment in clinical practice or as a background providing the rationale for a particular research direction (McCarthy and O’Sullivan, 2008).

This chapter will focus on how to write a literature review or systematic literature review for publication in a journal. An introduction and recap on what is required for a review will initially be considered to establish clearly the difference between what constitutes a systematic review from one that is not as systematic, yet offers valued evidence in a specific field and is nonetheless rigorous in its critique of the evidence available. Both of these are important to specific fields but, as noted previously, the systematic review is one where all the literature on a topic has been evaluated, and the evidence provided can actually contribute to either a change in clinical practice as a result or a change in education or management practice. Learning how to write an effective systematic review is critical for those of you who may wish to publish aspects of a doctoral study, or have undertaken funded research projects where the recommendations for change need to demonstrate a systematic approach to evidence searching.

Where do we start? Initially we will consider the issues as if you had not undertaken a review as part of any study or project but simply wished to demonstrate your understanding of the evidence available on a topic prior to the possibility of undertaking either a funded research project or postgraduate study and wished to share this in a published piece of work. It is worth noting that for many who have undertaken such activity, finding a systematic review of the literature in your field of study is considered a veritable ‘gold mine’ or excellent resource, because someone has already carried out a rigorous evaluation and critique of the evidence that underpins some of the project work that you are undertaking. In understanding the stages of undertaking an actual review itself, you will be better able to consider writing your critical analysis of the findings for publication in a journal.

Decide the question/aims/objectives

Formulating the exact question/problem that needs to be addressed in the literature review can be a challenge (Murphy and Cowman, 2008). However, to identify the appropriate literature that will form the basis of the review, it is important to be clear about the research problem (Murphy and Cowman, 2008). Without this clarity, relevant literature may be missed, resulting in a
The aim of the review was to identify student characteristics and strategies in research studies investigating retention (why students stay) as opposed to attrition (why students leave) in nursing and midwifery pre-registration programmes.

Whereas, Palfreyman et al. (2010), as seen in Box 7.2, set out systematically to review the literature with the aim of examining the quality of life questionnaires used to measure the impact of venous ulceration and to evaluate their psychometric properties. What is clear from these two examples is that the scope of the reviews, including the type of literature sought, is explicit within the aims. Cameron et al. (2011) were interested in retention not attrition literature, and Palfreyman et al. (2010) were primarily interested in the psychometric properties of the quality of life questionnaires in venous ulceration. Being explicit, means that much unnecessary literature may be excluded. For example Palfreyman et al. (2010) were not interested in wounds of all aetiologies, rather their focal point was on studies related to venous ulceration. Thus, studies relating to pressure ulcers and diabetic foot ulceration were not of interest, meaning the review is very specific in its focus. But this has been made implicit at the outset. This is an example of good practice in conducting and then writing a literature review. Rees (2010, p. 151) identifies a useful formula developed by Sackett et al. (1996) for developing a research question, which focuses on an intervention, that is the PICO formula.
This acronym PICO stands for:

P: Population; those (patients/clients) who form the focus of the review.
I: Intervention; that is the treatment.
C: Comparison; with an alternative treatment or no treatment.
O: Outcome; the measurable way that success is measured.

(Rees, 2010, p. 151)

This type of formula may not of course be relevant if you are undertaking a review for a research question that has no clear intervention.

Tip 1
When writing your completed review for publication it is important to make clear the strategy that you undertook for the literature (evidence) search.

Activity 1
Using the two examples, consider writing your own systematic review of the literature on a topic that you think requires a clearer evidence base than is currently published. Set out a clear and focused aim for your review. This can then be the basis of using this chapter to follow through the topic under investigation at every stage of the process.

Identify the search strategy
To ensure transparency in the outcomes of the review, the precise search strategy used to retrieve potential literature needs to be outlined (Murphy and Cowman, 2008). In essence, this means that the terms used, the databases employed, the limits applied and the outcomes of the search should be clearly identified (Murphy and Cowman, 2008). If this detail is visibly alluded to, it means that those reading the work may appreciate the strengths and limitations of the review, in terms of how and where the literature was identified. Furthermore, replicating the search strategy should mean that others may retrieve a similar body of literature (Murphy and Cowman, 2008).

It is important also, to make clear why certain literature was excluded; in doing this the risk of deliberate bias in literature selection may be avoided.
For example, Gilmartin (2011) in conducting a review of contemporary cosmetic surgery, outlined the search strategy as follows:

The search terms were: ‘cosmetic surgery’, ‘associated risks’, ‘regulation of cosmetic surgery’, ‘awful cosmetic operations’ and ‘medical tourism’; the search engines used were: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medical Literature Analysis and Retrieval System online (Medline) and British Nursing Index (BNI); and the limits applied were: English language, from 1982 to 2009.

Clearly, reading this search strategy immediately tells the reader that the review is limited, in that potential papers in other languages are not included.

Activity 2

Using your own identified aim (from Activity 1), identify keywords/search terms for undertaking the initial review and identify which databases you are going to use. Remember the points raised previously and that anyone reading this on publication will need to be assured that all possible evidence has been sought.


There are often practical and financial reasons why reviews are limited to one language (Murphy and Cowman, 2008). Despite these reasons, it is important that readers of the reviews note the search limitations, as this may have an impact on the robustness and, as such, the generalisability of the review findings. For example, Bardy et al. (2008), in their systematic review of honey uses and its potential value within oncology care, applied an exclusion criteria to papers not published in English. The challenge with this exclusion criterion is that it is reasonably possible that there are more relevant papers published in other languages. Conversely, Lo et al. (2008), in their systematic review of silver-releasing dressings in the management of infected chronic wounds, included both English and non-English papers, yielding a more robust review.

The systematic reviews published in the Cochrane library, offer insight into how search strategies are put together, they also offer a clear audit trail on how articles were included and excluded (Moore and Cowman, 2008a). It is of value to become familiar with some of the published Cochrane reviews, in order to become more aware of the process of developing a search strategy, see for example, Moore and Cowman (2005) and Moore and Cowman (2008b).
Activity 3

Access the Cochrane Collaboration website: http://www.cochrane.org/ and consider its publishing policy on systematic reviews: http://www.cochrane.org/policy-manual/225-publication-versions-cochrane-reviews-print-journals. If you have access to Athens databases you can also access full texts of published reviews: http://www.thecochranelibrary.com/view/0/index.html.

Consider the essential issues that you would have to consider to publish a Cochrane type systematic review, including if any bias identified.

Identifying bias in the literature

The appraisal of evidence is the key to determining its relevance for clinical practice. The purpose of which is to identify the strengths and limitations of the included pieces of work. The critique forms the underlying thread running through the review, as the review will summarise the evidence letting the reader know where the body of evidence lies (Moore and Cowman, 2009). However, in attempting to appraise and summarise the evidence, it is important to be aware of the variety of ways in which bias manifests itself in the literature. The Cochrane Collaboration defines bias as:

Something that will cause a consistent deviation from the truth.

(Deeks et al., 2002, p. 2)

This definition clearly identifies the challenges readers may have in interpreting the clinical significance of research studies. Ultimately, the goal is to determine whether or not the methods employed in the study are reliable, valid or rigorous and, furthermore, are applicable to the specific clinical situation (Egger et al., 2001b).

A study is said to be valid when the researcher is using the right people for the study and measuring outcomes with the right instruments, that is measuring what is supposed to be measured (Anthony, 1999). Reliability is said to exist when the results achieved are consistent, that is if the researcher took the measurement more than once, the results would be the same (Anthony, 1999). Reliability does not imply validity; a clock may give the time consistently, but the time may be incorrect, that is it may be always 15 minutes fast (Anthony, 1999). Qualitative researchers do not tend to use the words reliability and validity; rather favour the use of the concept of rigour (Tobin and Begley, 2004). Rigour is the means by which the integrity of the research process in qualitative research is demonstrated and involves providing sufficient information to the reader such that the research may be replicated and similar findings achieved (Tobin and Begley, 2004).
There are multiple ways bias may manifest itself in the literature (Egger et al., 2001a). Publication bias is considered a problem when the authors of a study decide to publish or not publish research findings depending on whether the results are favourable or not (Egger et al., 2001a). Indeed, a systematic review by Hopewell et al. (2009) identified that trials with positive findings were more likely to be published than trials with negative or null findings. The authors would expect 41% of negative trials to be published. Conversely, 73% of positive trials would be expected to be published (Hopewell et al., 2009). It is important to be aware of non-significant findings, as having only some of the information will result in bias in interpreting the strength, or direction, of the evidence base, possibly leading to inappropriate conclusions to the review (Moore and Cowman, 2008a).

Time-lag bias can cause issues in determining the strength of evidence for or against a particular intervention (Egger et al., 2001a), as it is known that non-significant research findings take longer to appear in the literature (Misakian and Bero, 1998). A systematic review by Hopewell et al. (2007) found that trials with statistically significantly positive results in favour of the treatment under investigation were published in approximately 4–5 years. Conversely trials that were not statistically significant or were statistically significantly in favour of the control arm were published after 6–8 years (Hopewell et al., 2007). The implications of this for those undertaking literature reviews, is that they may unwittingly summarise the evidence in favour of the treatment under review, because of a lack of knowledge regarding the full extent of the evidence.

Even when undertaking a literature review that does not demand the same expectations as a Cochrane systematic review, there is still a need to be systematic in approaching the evidence base. Many authors who submit articles of their literature reviews to a journal often do not demonstrate understanding and critique of the evidence base they require for assuring confidence in their findings. This may to some extent be related to the word limitations of the journal itself, but by stating it is a review there is an expectation that key literature will have been identified and reviewed.

Activity 4

Obtain a copy of the following article and use it to support your endeavour to write a review for publication in a journal. It offers a broad overview of the key elements of a review article necessary for publication in a journal.

A further issue regarding bias is citation bias, where the authors include or exclude publications for citation, depending on the direction of the results (Egger et al., 2001a; Nieminen et al., 2006). In other words, when conducting a literature review, the authors cite studies based on their p-value rather than their actual methodological quality (Nieminen et al., 2007). Citation bias alters the apparent direction of the research evidence, misleading the reader to conclude that there is greater weight of evidence in favour of a treatment than there is (Nieminen et al., 2007).

For example Rossouw et al. (1990) noted, in their critique of a published review of cholesterol lowering after myocardial infarction, that inclusion bias led to a completely different meta-analysis than would have been achieved had other studies been included. Although one study that met the inclusion criteria was available, it was excluded from the original review; along with 11 other studies where the reviewers had no clear rationale for their exclusion. The initial review found in favour of hormone treatment, whereas, inclusion by Rossouw et al. (1990) of the omitted studies, demonstrated the opposite.

A further bias is outcome reporting bias (Egger et al., 2001a). This type of bias is said to occur when not all of the original recorded outcomes are published on the basis of the results of the trial, rather there is selection of a portion of the results. Smyth et al. (2011) investigated the frequency and reasons for outcome reporting bias in clinical trials. In almost all trials reviewed (15/16, 94%), this under-reporting resulted in bias. In nearly a quarter of trials (4/17, 24%), the ‘direction’ of the main findings influenced the investigators’ decision not to analyse the remaining data collected (Smyth et al., 2011). The presence of outcome reporting bias is high and as such can affect the conclusions that may be drawn when reviewing the literature Smyth et al., 2011. Essentially, the problem lies in the fact that a different conclusion may be drawn if the whole body of knowledge was available (Moore and Cowman, 2008a).

It seems clear that the appraisal of scientific evidence is challenging, with many pitfalls apparent that may mask the true nature of the evidence. Fundamentally, there are two components to this problem; firstly, what is considered to be ‘evidence’ and secondly how should this ‘evidence’ be reported, in order that one may have confidence in what has been read.

Critically evaluating the literature

To provide a succinct summary of the chosen literature, each component of the published paper needs to be explored and critically appraised. McCarthy and O’Sullivan (2008) suggest that the use of generic criteria for evaluating the literature may be helpful. These criteria explore issues from the design, sample selection, data collection, data analysis and findings, among others. These criteria are usually available in templates and are useful to enable the reviewer summarise the key components and strengths and limitations of the studies in an easily accessible manner, avoiding the need to refer
back to the original paper during the writing of the review. An example of such a template to evaluate qualitative and quantitative methodological studies can be seen in Holland and Rees (2010) accessible online at: http://www.oup.com/uk/orc/bin/9780199563104/01student/chapters/ch07/frameworks/ (Accessed 12 December 2011). Although these tools are aimed at mainly undergraduate students, they still remain a useful framework for criteria to be considered for a published review of the literature in either paradigm.

The Joanna Briggs Institute has a toolkit called RAPid: (see http://connect.jbiconnectplus.org/Appraise.aspx; Accessed 12 December 2011), which it states as:

**RAPid is designed to assist individual practitioners and undergraduate and postgraduate students to acquire the skills of posing relevant questions about the feasibility, appropriateness, meaningfulness or effectiveness of an intervention or professional activity, and to pursue this question through applying the following basic steps of the comprehensive systematic review process:**

- **Topic identification and rigorous question development**
- **Searching for the evidence**
- **Critically appraising the evidence**
- **Summarising the evidence**
- **Reporting the results of this process in an accessible format to maximise knowledge transfer to practice**

(The Joanna Briggs Institute)

Although use of generic templates for evaluating the literature are useful, there are some specific considerations in different research designs that warrant consideration and these will be discussed further. That is, in case this is what they want to write up - of course, it helps that they are also being told what to do first! Then they can have tips about what to include in their written-up review for different media - whether journal article or report, etc.

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**Assessing quality issues in randomised controlled clinical trials**

The randomised controlled trial (RCT) is considered the gold standard for evaluating the effect of interventions used in clinical practice (Egger and Smith, 2001). RCTs are not the only form of evidence and the selection of the most appropriate methodology for a study will depend on the question being asked. The Cochrane Collaboration has several key issues that they consider important in the assessment of the quality and impact on the external validity of RCTs. These include randomisation, allocation concealment, baseline comparability, blinding and intention-to-treat (ITT) (Higgins and Altman, 2008b).
Randomisation

In an RCT the researcher is interested in determining the effect of a specific intervention on a group of participants; if one can determine with confidence, that any effects noted have occurred due to the intervention and not as a result of a specific characteristic of the participants in one of the study groups (Altman, 1991). The use of an experimental group and control group in the RCT determines the effects of intervention. However, depending on how groups are allocated to the specific arms of the study, bias can emerge.

Using random methods means that each and every participant has an equal chance of being allocated to either one or other of the study groups (Bland, 2000), thus preventing researcher bias when selecting participants or the group to which they are allocated (Altman, 1991). This is also important when one is wishing to infer back to the population from whom the sample was generated. Inferential statistical methods employed in a study are based on the premise that the sample has been selected using random methods (Altman, 1991). Without this criterion, the results are not applicable beyond the sample. Fundamentally, the importance of randomisation lies in its contribution to reducing bias, thereby enhancing the confidence that one may have in the results of a clinical trial (Schultz and Grimes, 2002).

Moher and colleagues (1998) explored the effect that the quality of reporting of clinical trials had on the effect ‘estimates of intervention efficacy’, reported in meta-analysis. They included 11 published meta-analyses that had been previously reported in either medical journals or the Cochrane Database of Systematic Reviews. Only 15% of the 127 studies included in the meta-analyses reported the methods used to generate the randomisation sequence. The average treatment effect was 52% for low-quality trials (OR 0.48 [0.43–0.54]). When adjusted for poor quality the treatment effects reduced to 35% (OR 0.65 [0.59–0.71]).

Allocation concealment

Allocation concealment is a randomisation method that prevents the researcher influencing which group, experimental or control, a participant is allocated to (Higgins and Altman, 2008b), rather ensuring that the participant is assigned to a specific study group by chance (Higgins and Altman, 2008b). Studies without adequate allocation concealment tend to report larger estimates of effect when compared to those who describe adequate allocation concealment (Schulz, 2000). Indeed, one study showed that in studies without adequate allocation concealment, there was a tendency to report an increased estimate of effect (37%; ROR = 0.63; 95% CI 0.45–0.88). This suggested that in the presence of lower quality trials, the treatment effect may be exaggerated, and this large margin of error needs to be considered in the interpretation of the outcomes of such studies. This has important implications for clinical practice where decisions regarding patient care may be made based on the results of these trials.
Baseline comparability

Baseline data refers to the data collected from each participant before beginning the trial (Friedman et al., 1996). This includes demographic information, medical condition and prognostic factors and where appropriate, socio-economic information. This allows the researcher to determine if participants in both arms of the study are comparable at the outset of the study (Friedman et al., 1996) and allows those evaluating the study to determine if the characteristics of those participating in the study are similar to those normally encountered in the reader’s clinical practice (Friedman et al., 1996). The external validity of the study is central in determining whether the findings are applicable in the clinical setting.

The randomisation process, if applied correctly, should ensure baseline comparability; that is, differences between the groups at baseline have occurred by chance (Pocock et al., 2002). However, there can be factors specific to certain patients that the researcher may be unaware of. Such factors may manifest themselves during the trial and sub-group analysis may clarify the statistical significance of such differences (Pocock et al., 2002). Interestingly, in a systematic review of pressure ulcer cleansing products (Moore and Cowman, 2005), two of the three trials included failed to provide adequate information pertaining to baseline comparability (Griffiths et al., 2001; Bellingeri et al., 2004) and one study did not provide any information pertaining to the baseline characteristic of the subjects (Burke et al., 1998). Similarly, in a review of therapeutic ultrasound for pressure ulcers (Baba-Akbari Sari et al., 2006), two of the studies reported baseline data (Nussbaum et al., 1994; ter Riet et al., 1995), whereas the third study did not report this information fully (McDiarmid et al., 1985). It appears, however, that those papers published more recently include more relevant information pertaining to baseline characteristics, suggesting that this component is now considered important in determining the quality of a clinical trial (Pocock et al., 2002).

Blinding

Blinding of the study is said to be complete if the investigators, the participants, the outcome assessor and the individual analysing the data have no idea which group the participant is allocated to (Higgins and Altman, 2008b). Human behaviour is influenced by prior knowledge, thus, without blinding, there is a risk that the size of the effect may be overestimated, resulting in a bias in favour of the treatment (Day and Altman, 2000). Therefore, blinding is considered important in the assessment of subjective outcomes, such as ease of use of a treatment, and in ensuring comparability of assessment and diagnostic interventions across all groups within a study (Higgins and Altman, 2008b). Fundamentally, the objective of blinding is to maximise the quality and believability of the data derived from a clinical trial (Bang et al., 2004). However, in a study by Fergusson and colleagues (2004), only 2% of 191 trials reported in the medical literature from 1998 to 2001 provided evidence of the
success of blinding. Further, in another study, reports from un-blinded studies resulted in a 34% greater estimate of treatment effect (ROR = 0.66; 95% CI 0.52–0.83) (Moher et al., 1998).

**Intention-to-treat**

ITT analysis means that participants are analysed according to the group they were originally allocated to even if they do not adhere to the study protocol or complete the study. The rationale for using ITT analysis is two-fold; it maintains treatment groups that are similar (apart from random variation) and, therefore, validates the use of randomisation (Hollis and Campbell, 1999), and allows for handling of protocol deviations, further protecting the randomisation process (Hollis and Campbell, 1999). Essentially, omitting those who do not complete the study from the final analysis may bias the outcomes of the study, because those who do not complete may do so because of adverse effects of the intervention (Montori and Guyatt, 2001).

ITT analysis is considered one of the key quality indicators in any research study (Campbell et al., 2004). However, in three systematic reviews reported in the Cochrane library, it was not conducted or not reported in 2 of 3 studies (Moore and Cowman, 2005), 4 of 7 studies (Ubbink et al., 2008) and 17 of 19 studies (Jull et al., 2008). This suggests that this quality indicator has not yet been completely integrated into clinical research. The challenge with not including those who do not complete the study in the final analysis is that it suggests that those who adhere to the protocol tend to do better than those who do not comply (Montori and Guyatt, 2001). The risk is that the researcher will make a type 1 error, which is to reject the null hypothesis, when it is true (Lachin, 2000). Indeed, it is argued that the probability of committing a type 1 error increases by 0.50 in the absence of ITT (Lachin, 2000).

To place trial evidence on the correct rung of the hierarchy ladder, it needs to be appraised for the relative merits of results achieved. Fundamentally, individuals conducting critical appraisal are asking whether the study findings can be believed (Higgins and Altman, 2008a). To meet the challenge of reporting clinical trials in published literature, a group of experts developed the consolidated standards of reporting trials (CONSORT) statement, published in 1996 (Begg et al., 1996), which was later revised and published in 2001 (Moher et al., 2001). There are 22 items included in the CONSORT checklist, the purpose of which is to standardise the reporting of clinical trials and thus simplify the quality appraisal process (Moher et al., 2001). When appraising clinical trials it is a good idea to use the CONSORT statement to guide you in the areas you need to consider to determine the studies methodological rigor (see http://www.consort-statement.org/consort-statement/).

**Assessing quality issues in qualitative studies**

Assessment of quality issues in qualitative studies is not a straightforward process and many of the instruments used for clinical trials do not readily
apply (Noyes et al., 2011). There are a wide variety of instruments available, all of which have been designed specifically for qualitative research. However, as such, there is variance among these instruments and a lack of consistency in approach may be a concern (Noyes et al., 2011). Despite these challenges, qualitative data have been analysed in a variety of different circumstances alone or alongside clinical trials, in a systematic manner, yielding valuable insights into individual’s experiences (Noyes and Popay, 2007).

Horsburgh (2003) argues that the evaluation of qualitative research requires adoption of rigorous methods in order that the clinical implications of the findings may be determined. Furthermore, adoption of these rigorous methods is possible if, for example, the reviewer follows the guidance of Popay et al. (1998). These authors (Popay et al., 1998) suggest that there are three interrelated criteria that are the basis of good qualitative health research. These criteria are the following:

(1) Interpretation of subjective meaning, that is the participants’ accounts is the basis upon which all the analysis and interpretation are clearly founded (Popay et al., 1998; Horsburgh, 2003).
(2) Description of social context, that is the study should provide clear background information about the environment in which the participants were situated (Popay et al., 1998; Horsburgh, 2003).
(3) Attention to lay knowledge, that is within a study the participants’ own points of view and perspectives are given equal weighting to those of ‘experts’ in the field (Popay et al., 1998; Horsburgh, 2003).

What does this mean for someone wanting to write a review for publication? Consideration of these issues is important for you when reviewing qualitative literature, as they will help you determine the trustworthiness of the studies. This information is important to include in your review, so the reader may understand the strengths and limitations of the studies you have included.

Horsburgh (2003) adds some other criteria to consider, such as sampling. While acknowledging that sampling in qualitative research does not follow the same rigorous process as in qualitative research, nonetheless, the sampling should be adequate. In other words, does the sampling provide for the possibility of adequate exploration of the subject and the context in which the subject matter is located (Horsburgh, 2003)? A further criterion is flexibility, whereby there is variability rather than rigidity in the research approach. This is considered important to allow for the natural emergence of a change in direction based upon the continuous analysis of the data during the research process (Horsburgh, 2003).

Finally, Horsburgh (2003) argues that generalisability of findings is an important concern in qualitative research. However, it does not follow the probabilistic generalisability seen in quantitative research, rather it is a theoretical generalisability (Horsburgh, 2003). In other words, the research should explore the theoretical possibility that the theory developed in one study may be used to provide explanatory theory for the experiences of other individuals in similar circumstances (Horsburgh, 2003).
Having critically appraised the literature, allowing the findings to emerge from what has been read, the next step is to write the review (McCarthy and O’Sullivan, 2008). It is important to have a good structure for how the review will flow, such that it follows a logical sequence of thought, which is easily understood by the reader (McCarthy and O’Sullivan, 2008). Presentation of a synthesis of the literature is the key to ensuring readability and clarity in presentation of the salient points (Aveyard, 2010).

Use of a mind map (Figure 7.1) to plan out the sections of the review is worthwhile, as this allows the writer logically plan out how the review will look (Heinrich, 2001). First, all the ideas that have arisen from what has been read should be written down; furthermore, these ideas should be linked to the congruent and divergent issues within the literature (Heinrich, 2001). These ideas are then linked to themes and emerging interconnecting themes are brought together (Heinrich, 2001). Following this, the rhetoric that supports the themes is added, including the arguments from the literature that support or refute the theme (Heinrich, 2001). Finally, the order that the themes should appear in the review is decided, ideally moving from the general to the specific (Heinrich, 2001).

Actually writing the review can be challenging, as the writer has to balance between the provision of sufficient information to enable understanding, with the exclusion of information considered unnecessary (Heinrich, 2001). The review should include a succinct overview of the methodological issues arising in the literature, such that the reader may appreciate the generalisability of the review findings (McCarthy and O’Sullivan, 2008). Furthermore, the recommendations made should be founded in the literature that has been read, with the gaps in current knowledge clearly identified (McCarthy and O’Sullivan, 2008). Fundamentally, the writer is attempting to provide a balanced,
unbiased review of what has been read in order to make recommendations for practice and future research.

**Activity 5**

If you have followed all the steps outlined in this chapter, as well as accessed the numerous resources and references highlighted throughout, it is pertinent now that you undertake to write either a literature review that is systematic in its approach to finding evidence on a topic, or a full systematic review as per Cochrane guidance.

You may have undertaken either one as a part of postgraduate studies or as a part of research project report for a funding body. Publishing a review of any kind is rewarding as well as being practical, as it gathers evidence together on a specific subject to enable you to make valid and reliable recommendations to those reading it.

**Conclusion**

The purpose of writing a literature review, whether it is called a systematic review or not, is to provide a summary of what is known and not known about a particular body of literature. In doing so the writer needs to be explicit about the review question, how the literature was searched and retrieved, including the rationale for non-inclusion of particular papers. In addition, the methods for critical appraisal of the literature should be clearly outlined, which should, ideally, follow a systematic, logical format. Writing the review can be challenging, but use of a mind map may be of assistance in lending clarity to the themes that should be included, in addition to the relevant supporting or refuting data emerging from what has been read. Finally, the recommendations made should be clearly linked to what has been read and presented, including the methodological challenges and limitations. The purpose of this is to guide practice and future research.

**References**


Further reading


Henderson, L.K., Craig, J.C., Willis, N.S., Tovey, D. & Webster, A.C. (2010) How to write a Cochrane Systematic Review. Nephrology, 15, 617-624.


Websites


Section 2: Writing a Review Article - an introduction to writing a review article for publication. This Section is one of many others related to writing for publication in this guide and it also includes links to other resources that you may find helpful. Available at: http://www.nurseauthoreditor.com/WritingforPublication2009.pdf [Accessed 12 April 2012].