CHAPTER 11

Systematic Reviews and Clinical Practice Guidelines

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LEARNING OUTCOMES

After reading this chapter, you should be able to do the following:

• Describe the types of research reviews.
• Describe the components of a systematic review.
• Differentiate between a systematic review, meta-analysis, and integrative review.
• Describe the purpose of clinical guidelines.
• Differentiate between an expert and an evidence-based clinical guideline.
• Critically appraise systematic reviews and clinical practice guidelines.

KEY TERMS

AGREE II  
CASP tools  
clinical practice guidelines  
effect size  
evidence-based practice guidelines  
expert-based practice guidelines  
forest plot  
integrative review  
meta-analysis  
systematic review

The breadth and depth of clinical research has grown. As the number of research studies focused on similar content conducted by multiple researchers has grown, it has become important to have a means of organizing and assessing the quality, quantity, and consistency among the findings of a group of like studies. The previous chapters have introduced the types of qualitative and quantitative designs and how to critique these studies for quality and applicability to practice. The purpose of this chapter is to acquaint you with systematic reviews and clinical guidelines that assess multiple studies focused on the same clinical
question, and how these reviews and guidelines can support evidence-based practice. Terminology used to define systematic reviews and clinical guidelines has changed as this area of research and literature assessment has grown. The definitions used in this textbook are consistent with the definitions from the Cochrane Collaboration and the PRISMA Group (Higgins & Green, 2011; Moher et al, 2009). Systematic reviews and clinical guidelines are critical and meaningful for the development of quality improvement practices.

**SYSTEMATIC REVIEW TYPES**

As defined in Chapter 1, a **systematic review** is a summation and assessment of research studies found in the literature based on a clearly focused question that uses systematic and explicit methods to identify, select, critically appraise, and analyze relevant data from the selected studies to summarize the findings in a focused area (Liberati et al., 2009; Moher et al., 2009). Statistical methods may or may not be used to analyze the studies reviewed. Multiple terms and methods are used to systematically review the literature, depending on the review’s purpose. See Box 11-1 for the components of a systematic review. At times, some of these terms are used interchangeably. The terms **systematic review** and **meta-analysis** are often used interchangeably or together. The only review type that can be labeled a meta-analysis is one that reviewed studies using statistical methods. An important concept to remember when reading a systematic review is how well the studies reviewed minimized bias or maintained the concept of control (see Chapters 8 and 9).

You will also find reviews of an area of research or theory synthesis termed **integrative reviews**. **Integrative reviews** critically appraise the literature in an area but without a statistical analysis and are the broadest category of review (Whittemore, 2005; Whittemore & Knafl, 2005). Systematic and integrative reviews are not designs per se, but methods for

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**BOX 11-1  SYSTEMATIC REVIEW COMPONENTS WITH OR WITHOUT META-ANALYSIS**

| **Introduction** |
| Review rationale and a clear clinical question (PICO) |
| **Methods** |
| Information sources, databases used, and search strategy identified: how studies were selected and data extracted as well as the variables extracted and defined |
| Description of methods used to assess risk of bias, summary measures identified (e.g., risk, ratio); identification of how data is combined, if studies are graded what quality appraisal system was used (see Chapters 1, 17, and 18) |
| **Results** |
| Number of studies screened and characteristics, risk of bias within studies, if a meta-analysis there will be a synthesis of results including confidence intervals, risk of bias for each study, and all outcomes considered |
| **Discussion** |
| Summary of findings including the strength, quality, quantity and consistency of the evidence for each outcome |
| Any limitations of the studies, conclusions and recommendations of findings for practice |
| **Funding** |
| Sources of funding for the systematic review |
searching, and integrating the literature related to a specific clinical issue. These methods take the results of many studies in a specific area; assess the studies critically for reliability and validity (quality, quantity, and consistency) (see Chapters 1, 7, 17, and 18); and synthesize findings to inform practice. Meta-analysis provides Level I evidence; the highest level of evidence as it statistically analyzes and integrates the results of many studies. Systematic reviews and meta-analyses also grade the level of design or evidence of the studies reviewed (see Chapters 1 and 17). Of all the review types, a meta-analysis provides the strongest summary support because it summarizes studies using data analysis. The Critical Thinking Decision Path outlines the path for completing a systematic review.

**SYSTEMATIC REVIEW**

A systematic review is a summary of the quantitative research literature that used similar designs based on a focused clinical question. The goal is to bring together all of the studies concerning a focused clinical question and, using rigorous inclusion and exclusion criteria, assess the strength and quality of the evidence provided by the chosen studies in relation to:

- Sampling issues
- Internal validity (bias) threats
- External validity
- Data analysis
The purpose is to report, in a consolidated fashion, the most current and valid research on intervention effectiveness and clinical knowledge, which will ultimately inform evidence-based decision making about the applicability of findings to clinical practice.

Once the studies in a systematic review are gathered from a comprehensive literature search (see Chapter 3), they are assessed for quality and synthesized according to quality or focus; then practice recommendations are made and presented in an article. More than one person independently evaluates the studies to be included or excluded in the review. Generally, the articles critically appraised are discussed in the article and presented in a table format within the article, which helps you to easily identify the specific studies gathered for the review and their quality. The most important principle to assess when reading a systematic review is how the author(s) of the review identified the studies to evaluate and how they systematically reviewed and appraised the literature that leads to the reviewers’ conclusions.

The components of a systematic review are the same as a meta-analysis (see Box 11-1) except for the analysis of the studies. An example of a systematic review was completed by Fowles and colleagues (2012) on the effectiveness of maternal health promoting interventions. In this review, the authors

- Synthesized the literature from studies on the effectiveness of interventions promoting maternal health in the first year after childbirth.
- Included a clear clinical question; all of the sections of a systematic review were presented, except there was no statistical meta-analysis (combination of studies data) of the studies as a whole because the interventions and outcomes varied across the studies reviewed.

Each study in this review was considered individually, not collectively, for its sample size, effect size, and its contribution to knowledge in the area based on a set of criteria.

Although systematic reviews are highly useful, they also have to be reviewed for potential bias. Thus the studies in a review need to be carefully critiqued for scientific rigor in each step of the research process.

**META-ANALYSIS**

A meta-analysis is a systematic summary using statistical techniques to assess and combine studies of the same design to obtain a precise estimate of effect (impact of an intervention on the dependent variable/outcomes or association between variables). The terms meta-analysis and systematic review are often used interchangeably. The main difference is only a meta-analysis includes a statistical assessment of the studies reviewed. A meta-analysis statistically analyzes the data from each of the studies, treating all the studies reviewed as one large data set in order to obtain a precise estimate of the effect (impact) of the results (outcomes) of the studies in the review.

Meta-analysis uses a rigorous process of summary and determining the impact of a number of studies rather than the impact derived from a single study alone (see Chapter 10). After the clinical question is identified and the search of the review of published and unpublished literature is completed, a meta-analysis is conducted in two phases:

- Phase I: The data are extracted (i.e., outcome data, sample sizes, and measures of variability from the identified studies).
Phase II: The decision is made as to whether it is appropriate to calculate what is known as a pooled average result (effect) of the studies reviewed.

Effect sizes are calculated using the difference in the average scores between the intervention and control groups from each study (Cochrane Handbook of Systematic Reviews for Interventions, 2011). Each study is considered a unit of analysis. A meta-analysis takes the effect size (see Chapter 12) from each of the studies reviewed to obtain an estimate of the population (or the whole) to create a single effect size of all the studies. Thus the effect size is an estimate of how large of a difference there is between intervention and control groups in the summarized studies. For example, the meta-analysis in Appendix E studied the question “Does counseling follow-up of women who had a miscarriage improve psychological well-being?” (Murphy et al., 2012). The studies that assessed this question were reviewed and each weighted for its impact or effect on improving psychological well-being. This estimate helps health care providers decide which intervention, if any, was more useful for improving well-being after a miscarriage. Detailed components of a systematic review with or without meta-analysis (Moher et al., 2009) are listed in Box 11-1.

In addition to calculating effect sizes, meta-analyses use multiple statistical methods to present and depict the data from studies reviewed (see Chapters 19 and 20). One of these methods is a forest plot, sometimes called a blobbogram. A forest plot graphically depicts the results of analyzing a number of studies. Figure 11-1 is an example of a forest plot from Murphy and colleagues (Cochrane Review, 2012; see Appendix E). This review identified whether follow-up by health care professionals or lay organizations at any time affects the psychological well-being of women following miscarriage.

**EVIDENCE-BASED PRACTICE TIP**

Evidence-based practice methods such as meta-analysis increase your ability to manage the ever-increasing volume of information produced to develop the best evidence-based practices.

Figure 11-1 displays three studies that compared one counseling session versus no counseling sessions at 4 months after miscarriage using different psychological measures of well-being. Each study analyzed is listed. To the right of the listed study is a horizontal line that identifies the effect size estimate for each study. The box on the vertical line represents the effect size of each study and the diamond is the effect or significance of the combined studies. The boxes to the left of the 0 line mean that counseling was favored or produced a significant effect. The box to the right of the line indicates studies in which counseling was not favored or significant. The diamond is a more precise estimate of the interventions as it combines the data from the studies. The exemplar provided is basic as meta-analysis is a sophisticated methodology. For a fuller understanding, several references are provided (Borenstein et al., 2009; Higgins & Green, 2011); also see Chapters 19 and 20.

A well done meta-analysis assesses for bias in studies and provides clinicians a means of deciding the merit of a body of clinical research. Besides the repository of meta-analyses found in The Cochrane Library published by The Cochrane Collaboration (see Appendix E), meta-analyses can be found published in journals. For example, Cullen and colleagues (2011) conducted a meta-analysis with studies that assessed the feasibility and safety of prehospital hypothermia via data extraction from randomized controlled studies. The article presents
### Table 11-1: Meta-analysis of the Effect of Counseling on Different Outcomes

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>One Counselling Session</th>
<th>No Counselling</th>
<th>Std. Mean Difference</th>
<th>Std. Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean (SD)</td>
<td>N</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>1 Anxiety</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Lee 1996</td>
<td>21</td>
<td>7.4 (5.9)</td>
<td>18</td>
<td>8.1 (6.2)</td>
</tr>
<tr>
<td>Nikcevic 2007</td>
<td>33</td>
<td>5.6 (4.5)</td>
<td>33</td>
<td>7 (4.4)</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>54</td>
<td></td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: ( \chi^2 = 0.24, df = 1 (P = 0.63); I^2 = 0.0% )</td>
<td><strong>Test for overall effect: Z = 1.21 (P = 0.23)</strong></td>
<td></td>
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<tr>
<td>2 Depression</td>
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<tr>
<td>Lee 1996</td>
<td>21</td>
<td>3.2 (4.2)</td>
<td>18</td>
<td>4.8 (7)</td>
</tr>
<tr>
<td>Nikcevic 2007</td>
<td>33</td>
<td>2.8 (4.1)</td>
<td>33</td>
<td>3.7 (3.7)</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>54</td>
<td></td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: ( \chi^2 = 0.01, df = 1 (P = 0.90); I^2 = 0.0% )</td>
<td><strong>Test for overall effect: Z = 1.21 (P = 0.21)</strong></td>
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<tr>
<td>3 Grief</td>
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</tr>
<tr>
<td>Adolfsson 2006</td>
<td>43</td>
<td>31 (19.3)</td>
<td>45</td>
<td>32.7 (20)</td>
</tr>
<tr>
<td>Nikcevic 2007</td>
<td>33</td>
<td>39.9 (12.4)</td>
<td>33</td>
<td>42 (13.4)</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>76</td>
<td></td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: ( \chi^2 = 0.05, df = 1 (P = 0.82); I^2 = 0.0% )</td>
<td><strong>Test for overall effect: Z = 0.73 (P = 0.46)</strong></td>
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<td>4 Avoidance</td>
<td></td>
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<tr>
<td>Lee 1996</td>
<td>21</td>
<td>13.5 (12)</td>
<td>18</td>
<td>11.4 (11.3)</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>21</td>
<td></td>
<td>18</td>
<td></td>
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<tr>
<td>Heterogeneity: not applicable</td>
<td><strong>Test for overall effect: Z = 0.55 (P = 0.58)</strong></td>
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<tr>
<td>5 Intrusion</td>
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<tr>
<td>Lee 1996</td>
<td>21</td>
<td>13.2 (11.3)</td>
<td>18</td>
<td>18.1 (11.5)</td>
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<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>21</td>
<td></td>
<td>18</td>
<td></td>
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<tr>
<td>Heterogeneity: not applicable</td>
<td><strong>Test for overall effect: Z = 1.30 (P = 0.20)</strong></td>
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<tr>
<td>6 Difficulty in Coping</td>
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<tr>
<td>Adolfsson 2006</td>
<td>43</td>
<td>21.7 (13.2)</td>
<td>45</td>
<td>22.9 (15.8)</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>43</td>
<td></td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: not applicable</td>
<td><strong>Test for overall effect: Z = 0.38 (P = 0.70)</strong></td>
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<tr>
<td>7 Despair</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Adolfsson 2006</td>
<td>43</td>
<td>20.7 (13.5)</td>
<td>45</td>
<td>20.6 (13.8)</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>43</td>
<td></td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: not applicable</td>
<td><strong>Test for overall effect: Z = 0.03 (P = 0.97)</strong></td>
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<tr>
<td>8 Self Blame</td>
<td></td>
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</tr>
<tr>
<td>Nikcevic 2007</td>
<td>33</td>
<td>5.7 (3.6)</td>
<td>33</td>
<td>5.6 (3.2)</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>33</td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: not applicable</td>
<td><strong>Test for overall effect: Z = 0.12 (P = 0.91)</strong></td>
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<tr>
<td>9 Worry</td>
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</tr>
<tr>
<td>Nikcevic 2007</td>
<td>33</td>
<td>11.9 (3.3)</td>
<td>33</td>
<td>13.5 (4.1)</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>33</td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: not applicable</td>
<td><strong>Test for overall effect: Z = 1.71 (P = 0.088)</strong></td>
<td></td>
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</tr>
</tbody>
</table>

**Test for subgroup differences: \( \chi^2 = 4.59, df = 8 (P = 0.80); I^2 = 0.0\% \)**

**FIGURE 11-1** An example of a forest plot.
The largest repository of meta-analyses is the Cochrane Collaboration/Review. The Cochrane Collaboration is an international organization that prepares and maintains a body of systematic reviews that focus on health care interventions (Box 11-2). The reviews are found in the Cochrane Database of Systematic Reviews. The Cochrane Collaboration collaborates with a wide range of health care individuals with different skills and backgrounds for developing reviews. These partnerships assist with developing reviews that minimize bias while keeping current with assessment of health care interventions, promoting access to the database, and ensuring the quality of the reviews (Cochrane Handbook for Systematic Reviews, 2011). The Murphy and colleagues (2012) meta-analysis can be found in the Cochrane Collaboration Database (see Appendix E). The steps of a Cochrane Report mirror those of a standard meta-analysis except for the plain language summary. This useful feature is a straightforward summary of the meta-analysis. The Cochrane Library also publishes several other useful databases (Box 11-3).

**BOX 11-2 COCHRANE REVIEW SECTIONS**

| Review information: Authors and contact person | Data collection |
| Plain language summary | Analysis of the located studies, including effect sizes |
| The review: | Results including description of studies, risk of bias, intervention effects |
| Background of the question | Discussion |
| Objectives of the search | Implications for research and practice |
| Methods for selecting studies for review | References and tables to display the data |
| Type of studies reviewed | Supplementary information (e.g., appendices, data analysis) |
| Types of participants, types of intervention, types of outcomes in the studies | |
| Search methods for finding studies | |

**BOX 11-3 COCHRANE LIBRARY DATABASES**

- Cochrane Database of Systematic Reviews: Full-text Cochrane reviews
- Database of Abstracts of Review of Effects (DARE): Critical assessments and abstracts of other systematic reviews that conform to quality criteria
- Cochrane Central Register of Controlled Trials (CENTRAL): Information of studies published in conference proceedings and other sources not available in other databases
- Cochrane Methodology Register (CMR): Bibliographic information on articles and books on reviewing research and methodological studies

an introduction, details of the methods used to search the literature (databases, search terms, and years), data extraction, and analysis. The article also includes an evidence table of the studies reviewed, description of how the data were summarized, results of the meta-analysis, forest plot of the reviewed studies (see Chapter 19), conclusions, and implications for practice and research.

**COCHRANE COLLABORATION**

The largest repository of meta-analyses is the Cochrane Collaboration/Review. The Cochrane Collaboration is an international organization that prepares and maintains a body of systematic reviews that focus on health care interventions (Box 11-2). The reviews are found in the Cochrane Database of Systematic Reviews. The Cochrane Collaboration collaborates with a wide range of health care individuals with different skills and backgrounds for developing reviews. These partnerships assist with developing reviews that minimize bias while keeping current with assessment of health care interventions, promoting access to the database, and ensuring the quality of the reviews (Cochrane Handbook for Systematic Reviews, 2011). The Murphy and colleagues (2012) meta-analysis can be found in the Cochrane Collaboration Database (see Appendix E). The steps of a Cochrane Report mirror those of a standard meta-analysis except for the plain language summary. This useful feature is a straightforward summary of the meta-analysis. The Cochrane Library also publishes several other useful databases (Box 11-3).
INTEGRATIVE REVIEW

You will also find critical reviews of an area of research without a statistical analysis or a theory synthesis termed integrative reviews. An integrative review is the broadest category of review (Whittemore, 2005; Whittemore & Knafl, 2005). It can include theoretical literature, research literature, or both. An integrative review may include methodology studies, a theory review, or the results of differing research studies with wide-ranging clinical implications (Whittemore, 2005). An integrative review can include quantitative or qualitative research, or both. Statistics are not used to summarize and generate conclusions about the studies. Several examples of an integrative review are found in Box 11-4. Recommendations for future research are suggested in each review.

TOOLS FOR EVALUATING INDIVIDUAL STUDIES

As the importance of practicing from a base of evidence has grown, so has the need to have tools or instruments available that can assist practitioners in evaluating studies of various types. When evaluating studies for clinical evidence, it is first important to assess if the study is valid. At the end of each chapter of this text are critiquing questions that will aid you in assessing if studies are valid and if the results are applicable to your practice. In addition to these questions, there are standardized appraisal tools that can assist with appraising the evidence. The international collaboration Critical Appraisal Skills Programme (CASP), whose focus is on teaching critical appraisal, developed tools known as Critical Appraisal Skills Programme Checklists that provide an evidence-based approach for assessing the quality, quantity, and consistency of specific study designs (CASP, 2012). These instruments are part of an international network that provides consumers with specific questions to help assess study quality. Each checklist has a number of general questions as well as design-specific questions. The tools center on assessing a study’s methodology, validity, and reliability. The questions focus on the following:

1. Are the study’s results valid? Understanding the steps of research methodology, especially threats to internal validity as described in the previous and subsequent chapters, will assist in this process (see Chapters 8 through 16).
2. What are the results? This means can you rely on the results (analysis) or the study’s findings (see Chapters 16 and 17).

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**BOX 11-4 INTEGRATIVE REVIEW EXAMPLES**

- Cahill and colleagues (2012) published an integrative review of brain tumor symptoms as an antecedent to uncertainty. This review included a purpose, description of the methods used (databases searched, years included), key terms used, and parameters of the search. These components allow others to evaluate and replicate the search. Twenty-one nonexperimental design studies that assessed brain tumor symptoms and uncertainty were found and reviewed in the text and via a table format.

- Kestler & LoBiondo-Wood (2012) published an integrative review of symptom experience in children and adolescents with cancer. The review was a follow-up of a 2003 review published by Docherty (2003) and was completed to assess the progress that has been made since the 2003 research publication on the symptoms of pediatric oncology patients. The review included a description of the search strategy used including databases, years searched, terms used, and the results of the search. Literature on each symptom was described, and a table of the 52 studies reviewed was included.
3. Are the findings applicable to your practice? Chapters 19 and 20 are aimed at helping you with this decision.

Each CASP guideline is divided into one of the above three areas in a study. There are eight critical appraisal checklists. The checklist with instructions can be found at www.casp-uk-net. The design specific CASP tools with checklists are available online and include:

- Systematic reviews
- Randomized controlled studies
- Cohort studies
- Diagnostic studies
- Case-control studies
- Economic evaluations
- Qualitative studies
- Clinical prediction rule

**CLINICAL PRACTICE GUIDELINES**

Clinical practice guidelines are systematically developed statements or recommendations that link research and practice and serve as a guide for practitioners. Guidelines have been developed to assist in bridging practice and research. Guidelines are developed by professional organizations, government agencies, institutions, or convened expert panels. Guidelines provide clinicians with an algorithm for clinical management, or decision making for specific diseases (e.g., colon cancer) or treatments (e.g., pain management). Not all guidelines are well developed and, like research, must be assessed before implementation (see Chapter 9). Guidelines should present scope and purpose of the practice, detail who the development group included, demonstrate scientific rigor, be clear in its presentation, demonstrate clinical applicability, and demonstrate editorial independence. An example is the National Comprehensive Cancer Network, which is an interdisciplinary consortium of 21 cancer centers across the world. Interdisciplinary groups develop practice guidelines for practitioners and education guidelines for patients. These guidelines are accessible at www.nccn.org.

The research findings in a clinical practice guideline need to be evaluated for quality, quantity, and consistency. Practice guidelines can be either expert-based or evidence-based. Evidence-based practice guidelines are those developed using a scientific process. This process includes first assembling a multidisciplinary group of experts in a specific field. This group is charged with completing a rigorous search of the literature and completing an evidence table that summarizes the quality and strength of the evidence on which the practice guideline is derived (see Chapters 19 and 20). For various reasons, not all areas of clinical practice have a sufficient research base; therefore, expert-based practice guidelines are developed. Expert-based guidelines depend on having a group of nationally known experts in the field who meet and solely use opinions of experts along with whatever research evidence is developed to date. If limited research is available for such a guideline, a rationale should be presented for the practice recommendations.

Many national organizations develop clinical practice guidelines. It is important to know which one to apply to your patient population. For example, there are numerous evidence-based practice guidelines developed for the management of pain. These guidelines are available from organizations such as the Oncology Nurses Society, American Academy of Pediatrics, National Comprehensive Cancer Network, National Cancer Institute, American College of Physicians, and American Academy of Pain Medicine. You, as
a consumer of evidence, need to be able to evaluate each of the guidelines and decide which is the most appropriate for your patient population.

The Agency for Healthcare Research and Quality supports the National Guideline Clearinghouse (NGC). The NGC’s mission is to provide health care professionals from all disciplines with objective, detailed information on clinical practice guidelines that are disseminated, implemented, and issued. The NGC encourages groups to develop guidelines for implementation via their site; it is a very useful site to find well-developed clinical guidelines on a wide range of health- and illness-related topics. Specific guidelines can be found on the AHRQ Effective Health Care Program website.

**EVALUATING CLINICAL PRACTICE GUIDELINES**

As the number of evidence-based practice guidelines proliferate, it becomes increasingly important that you critique these guidelines with regard to the methods used for guideline formulation and consider how they might be used in practice. Critical areas that should be assessed when critiquing evidence-based practice guidelines include the following:

- Date of publication or release and authors
- Endorsement of the guideline
- Clear purpose of what the guideline covers and patient groups for which it was designed
- Types of evidence (research, nonresearch) used in guideline formulation
- Types of research included in formulating the guideline (e.g., “We considered only randomized and other prospective controlled trials in determining efficacy of therapeutic interventions.”)
- Description of the methods used in grading the evidence
- Search terms and retrieval methods used to acquire evidence used in the guideline
- Well-referenced statements regarding practice
- Review of the guideline by experts
- Whether the guideline has been used or tested in practice, and if so, with what types of patients and what types of settings

Evidence-based practice guidelines that are formulated using rigorous methods provide a useful starting point for nurses to understand the evidence base of practice. However, more research may be available since the publication of the guideline, and refinements may be needed. Although information in well-developed, national, evidence-based practice guidelines are a helpful reference, it is usually necessary to localize the guideline using institution-specific evidence-based policies, procedures, or standards before application within a specific setting.

There are several tools for appraising the quality of clinical practice guidelines. The **Appraisal of Guidelines Research and Evaluation II (AGREE II)** instrument is one of the most widely used to evaluate the applicability of a guideline to practice (Brouwers et al., AGREE Collaboration, 2010). The AGREE II was developed to assist in evaluating guideline quality, provide a methodological strategy for guideline development, and inform practitioners about what information should be reported in guidelines and how it should be reported. The AGREE II is available online and replaces the original AGREE tool. The instrument focuses on six domains with a total of 23 questions rated on a 7-point scale and two final assessment items that require the appraiser to make overall judgments of the guideline based on how the 23 items were rated. Along with the instrument itself, the
AGREE Enterprise website offers guidance on tool usage and development. The AGREE II has been tested for reliability and validity. The guideline assesses the following components of a practice guideline:

1. Scope and purpose of the guideline
2. Stakeholder involvement
3. Rigor of the guideline development
4. Clarity and presentation of the guideline
5. Applicability of the guideline to practice
6. Demonstrated editorial independence of the developers

Clinical practice guidelines, although they are systematically developed and make explicit recommendations for practice, may be formatted differently. Practice guidelines should reflect the components listed. Guidelines can be located on an organization’s website, at the AHRQ, on the National Guideline Clearinghouse website (www.AHRQ.gov), or on MEDLINE (see Chapters 3 and 20). Well-developed guidelines are constructed using the principles of a systematic review.

**CRITIQUING CRITERIA**

**Systematic Reviews**

1. Does the PICO question used as the basis of the review match the studies included in the review?
2. Are the review methods clearly stated and comprehensive?
3. Are the dates of the review’s inclusion clear and relevant to the area reviewed?
4. Are the inclusion and exclusion criteria for studies in the review clear and comprehensive?
5. What criteria were used to assess each of the studies in the review for quality and scientific merit?
6. If studies were analyzed individually, were the data clear?
7. Were the methods of study combination clear and appropriate?
8. If the studies were reviewed collectively, how large was the effect?
9. Are the clinical conclusions drawn from the studies relevant and supported by the review?

**APPRAISING THE EVIDENCE**

**SYSTEMATIC REVIEWS AND CLINICAL GUIDELINES**

For each of the review methods described—systematic, meta-analysis, integrative and clinical guidelines—think about each method as one that progressively sifts and sorts research studies and the data until the highest quality of evidence is used to arrive at the conclusions. First the researcher combines the results of all the studies that focus on a specific question. The studies considered of lowest quality are then excluded and the data are re-analyzed. This process is repeated sequentially, excluding studies until only the studies of highest quality available are included in the analysis. An alteration in the overall results as an outcome of this sorting and separating process suggests how sensitive the conclusions are to the quality of studies included (Whittemore, 2005). No matter which type of review is completed, it is important to understand that the research studies reviewed still must be examined through your evidence-based practice lens. This means that evidence that you have derived through your critical appraisal and synthesis or derived through other researchers’ review must be integrated with an individual clinician’s expertise and patients’ wishes.
You should note that a researcher who uses any of the systematic review methods of combining evidence does not conduct the original studies or analysis of data in the area, but rather takes the data from already published studies and synthesizes the information by following a set of controlled and systematic steps. Systematic methods for combining evidence are used to synthesize both nonexperimental and experimental research studies.

Finally, evidence-based practice requires that you determine—based on the strength and quality of the evidence provided by the systematic review coupled with your clinical expertise and patient values—whether or not you would consider a change in practice. For example, the meta-analysis by Murphy and colleagues (2012) in Appendix E details the important findings from the literature, some that could be used in nursing practice and some that need further research.

Systematic reviews that use multiple randomized controlled trials (RCTs) to combine study results offer stronger evidence (Level I) in estimating the magnitude of an effect for an intervention (see Chapter 2, Table 2-3). The strength of evidence provided by systematic reviews is a key component for developing a practice based on evidence. The qualitative counterpart to systematic reviews is meta-synthesis, which uses qualitative principles to assess qualitative research and is described in Chapter 5.

**REFERENCES**


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