

Project to Enhance Research Literacy (PERL) Achieving Competency in Evidence Informed Practice (EIP): A Resource Guide for Educators

Introduction

Skills in collaborative care are essential for all healthcare practitioners. Knowledge of other health care systems and the practices of colleagues in other fields, commonly referred to as inter-professional education (IPE), provides the framework for this type of care. Found in classrooms, teaching clinics, and research projects, IPE for health care students and faculty enhance the ability to collaborate.

For members of integrative health professions, education in IPE is very important as the face of healthcare is changing to be more inclusive of an integrative approach. Patients are starting to form their own healthcare teams and health systems are opening their doors to opportunities in interdisciplinary, inpatient and outpatient environments.

To meet the needs of educators in [integrative healthcare](#) fields, the Academic Collaborative for Integrative Health (ACIH, formerly known as ACCAHC) developed six [Competencies for Optimal Practice in Integrated Environments](#). These competencies and related knowledge areas are guides to facilitate collaboration and improve patient care through enhancing mutual respect and understanding across healthcare professions. Competency 5 focuses on Evidence Informed Practice as an essential skill for facilitating inter-professional collaborative care and optimal patient care.

General Competency statement, Competency 5- Evidence Based Health Care and Evidence Informed Practice

Explain, evaluate, and apply scientific evidence in the context of practitioner experience and patient preferences and apply evidence informed decision-making in integrated healthcare delivery.

This document provides general guidance and highlights specific educational resources for each of the seven sub-competencies that comprise Competency #5. For each sub-competency, the following is provided (for more detail please refer to the users guide):

- a) brief description;
- b) corresponding learning objectives;
- c) suggested resource list;
- d) example classroom activity; and
- e) a short vignette.

Except where otherwise noted, all of the resources included herein are freely available for use or modification with attribution under the Creative Commons Attribution Non-Commercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>).

Users Guide

This resource guide provides a general overview and highlights educational resources for each of the seven sub-competencies that comprise the ACIH **Competency 5- Evidence Based Health Care and Evidence Informed Practice**. Consistent with the *Competencies for Optimal Practice in Integrated Environments*, each sub-competency is labeled EP1-EP7 as an abbreviation for Evidence Based Health Care and Evidence Informed Practice.

The seven sub-competencies are:

- **EP1.** Explain the role of in healthcare in the context of practitioner experience and patient preferences.
- **EP2.** Describe common methodologies within the context of both clinical and mechanistic research, focusing on an assessment of your own field.
- **EP3.** Discuss contemporary issues in integrative practice research, including those relative to evaluating whole practices, whole systems, disciplines, patient-centered approaches and health outcomes.
- **EP4.** Analyze the research base within one's own discipline including the positive and negative interactions, indications and contraindications for one's own modalities and agents.
- **EP5.** Apply fundamental skills in research evaluation.
- **EP6.** Demonstrate evidence informed decision-making in clinical care.
- **EP7.** Discuss the value of evidence informed risk management planning and risk management behavior.

For each sub-competency, the following is provided:

- **Overview** of the sub-competency that provides insight to the purpose as well as a general overall goal.
- **Learning Objectives-** These are provided as a suggested starting point. Depending on the nature of your course or program you may choose to include only one or all.
- **Resources-** This is a suggested list of resources for both course instruction as well as professional enrichment. It includes a variety of books, classroom materials, video clips, and on-line learning modules. Most are freely available except where noted. The list is not exhaustive, rather it is presented as a starting point for

exploration. Depending on the nature of your course or program, you might only utilize one of the resources or find others that resonate with you personally or professionally. The list is limited to journal articles that provide free full text access. Please direct questions to dhill@accahc.org.

- **Classroom Activity-** This is one example of a possible activity that could be incorporated into a current course or any additional EIP coursework in development.
- **Vignette-** Vignettes included within this resource are designed to show the sub-competency in an applied situation to enhance understanding for both the instructor and the student. They are inspired by the format of the Association of American Medical Colleges Entrustable Professional Activities (<https://www.aamc.org/initiatives/coreepas/>). Specifically the [2014 AAMC Core Entrustable Professional Activities for Entering Residency Faculty and Learners Guide](#).

Several of the EIP resources referenced in this project were developed through funding from the National Center for Complementary and Integrative Health (NCCIH; formerly NCCAM) at the National Institutes of Health to the following institutions: Bastyr University (R25AT002876), National College of Natural Medicine (R25AT002878), National University of Health Sciences (R25AT002872), Northwestern Health Sciences University (R25AT003582), Oregon College of Oriental Medicine (R25AT002879), Palmer College of Chiropractic (R25AT003580), and the University of Western States (R24AT002880). Contents are solely the responsibility of the authors and do not necessarily represent the official views of NCCIH.

EP1. Explain the role of scientific evidence in healthcare in the context of practitioner experience and patient preferences.

Overview

Healthcare providers make decisions regarding the clinical care of their patients. These decisions may be influenced by scientific data, clinical observations, longstanding tradition, a provider's experience, and/or the patient's request. Relying too heavily on any one of these factors will likely bias the decision and may result in sub-optimal care. Maximizing the likelihood of making the best decisions requires an equal balance of scientific evidence, clinician expertise, and patient preference. This approach was originally termed Evidence Based Medicine, and subsequent permutations have been called Evidence Based Practice (EBP) and Evidence Informed Practice (EIP, see #4 for a general definition). This competency focuses on understanding the integration of research evidence into clinical care.

Goal-Understand the integration of research evidence into clinical care.

Learning Objectives

1. Describe the components of EIP.
2. Explain the rationale for applying EIP to clinical decision-making.
3. Illustrate the importance of EIP to integrative healthcare.

Resources

1. Sackett, D.L., Rosenberg, W.M., Grey, J.M., Haynes, R.B., Richardson, W.S. (1996). [Evidence-based medicine, what it is and what it isn't](#). *BMJ*, 312(7023); 71-72. This definitive publication outlines the principle concepts of the evidence based medicine movement.
2. Shaughnessy, A.F., Slawson, D.C., Becker, L. (1998). [Clinical jazz: harmonizing clinical experience and Evidence based medicine](#). *J Fam Pract* 47(6), 425-8. This now classic publication examines the interface between clinical expertise and research evidence.
3. Strauss, S.E., Glasziou, P., Richardson, W.S., Haynes, R.B. (2011). [Evidence-Based Medicine: How to Practice and Teach EBM., 4th ed.](#) Edinburgh: Churchill Livingstone. This book (for purchase) provides a comprehensive overview of evidence based medicine including teaching tips. The introduction defines evidence based medicine as well as a brief history of the EBM movement and some of its limitations.

4. [What do we mean by "Evidence Informed Practice"?](#) This document (provided courtesy of Northwestern Health Sciences University, 2013) provides a general definition for Evidence Informed Practice.
5. [Introduction to Evidence Based Practice tutorial.](#) This portion of the *Essential EBP for Complementary and Alternative Medicine Study and Practice Guide* (Barbara M. Sullivan, Ph.D. 2009, freely available through the National University of Health Sciences website) provides an overview and history of EIP.
6. [Evidence Informed Practice Module-](#) The first module in this series of freely available self paced on-line learning module, developed by Northwestern Health Sciences University and the University of Minnesota, reviews the components of EIP and includes clinical case examples. If you decide to use this module in your course, please email Dr. Roni Evans (evans972@umn.edu) to track use and receive notification of the most up to date version.

Classroom Activity

[The Great Evidence Based Practice Debate](#) This short video (provided courtesy of The University of Western States) is a fun approach to addressing disagreements often voiced during discussion of EIP. Challenges from various stakeholder viewpoints are included. One possible activity could include viewing the video during lecture then discussing the challenges to EIP with the class. Another activity might include assigning individual students to role-play these various stakeholders, using real world scenarios for their specific integrative health field, for a more interactive discussion on the interface of research evidence in clinical care.

Vignette

Sara is a solo integrative practitioner working with patients in her private practice for over 20 years. She prides herself on providing compassionate care in a healing environment. Sara recently joined a local professional group for integrative providers in her community that meets regularly to discuss issues in their practices. At their last meeting, group discussion focused on new continuing educational requirements in evidence informed practice. Several in the group expressed concern that research evidence would supersede their clinical experience. Others felt that most research did not apply to the patients they see in their integrative settings. Sara explained how EIP is a process that incorporates clinical experience, one of the three pillars upon which EIP is based (the other two are best available research evidence and patient preferences). She also described a recent case study she found helpful to her practice, and highlighted how the process of EIP includes many different forms of research evidence.

EP2. Describe common methodologies within the context of both clinical and mechanistic research, focusing on an assessment of your own field.

Overview

Research provides a systematic method to gather information and generate new knowledge. The type of research and study design will vary depending on the nature of the research question. For example, questions about how something works versus if something works will likely require different approaches of study. When determining what type of research is best suited to inform clinical decision making, providers must carefully weigh the various strengths and weaknesses of the study methodology. This competency focuses on the ability to recognize various types of research study designs, identify their strengths and weaknesses, and understand various ways to classify the applicability of these designs in clinical care.

Goal- Recognize various types of research study designs, identify their strengths and weaknesses, and understand various ways to classify the applicability of these designs in clinical care.

Learning Objectives

1. List common types of clinical research.
2. Identify strengths and weaknesses of various types of research design.
3. Recognize the conventional hierarchy of evidence.
4. Compare the study designs associated with each level of evidence.
5. Define the role of mechanistic research in clinical care.
6. Discuss integrative classifications for evidence.

Resources

1. Greenhalgh, T. (2014). [How to read a paper: The basics of evidence-based medicine \(5th ed.\)](#). West Sussex, UK: John Wiley & Sons. ISBN: 978-1-118-80096-6. This book (for purchase) walks the reader through various types of research papers with a focus on critical appraisal. Chapter 3 highlights research methods.
2. Menard, M. B. (2009). [Making Sense of Research \(2nd ed.\)](#). Curties-Overzet Publ. ISBN-13: 978-0968525661. This book (for purchase) reviews the basics of research literacy and evidence based practice for complementary and integrative providers. Chapter four focuses on research methods.
3. Lewith, G., Jonas, W.B., Walach, H. (2010). [Clinical research in complementary therapies: principles, problems and solutions \(2nd ed.\)](#). Churchill Livingstone. ISBN: 978-0-443-06956-7. This book (for purchase) discusses various research

methodologies as well as unique issues in research conducted in integrative environments. Chapter 4 reviews mechanistic research.

4. Jonas, W. B. (2001). [The evidence house: how to build an inclusive base for complementary medicine](#). *Western Journal of Medicine*, 175(2), 79. This now classic publication discusses a way to classify the strengths of various study methods from multiple stakeholder viewpoints.
5. Walach, H., Falkenberg, T., Fønnebo, V., Lewith, G., & Jonas, W. B. (2006). [Circular instead of hierarchical: methodological principles for the evaluation of complex interventions](#). *BMC Medical Research Methodology*, 6(1), 29. This timeless publication explores the complexity of what is considered best available evidence, proposing a circular model applicable to integrative environments.
6. [Foundations of Evidence Informed Practice Learning Modules](#) This series of interactive learning modules (freely available through the University of MN Center for Spirituality & Healing website) offers an introduction to EIP and research designs.
7. Sullivan, B.M., Cambron, J.A. (2008). [Appraising the Literature Overview of Study Designs](#) This review, available through the National University of Health Sciences website, provides a concise summary of individual study designs.
8. Goodman, S. N., & Gerson, J. (2013). [Mechanistic Evidence in Evidence-Based Medicine: A Conceptual Framework](#). This report explores the role that mechanistic research plays in making informed decisions about care.

Classroom Activity

[Medical Literature Overview: Study Design & "Hierarchy of Evidence"](#)

This laboratory worksheet (available through the National University of Health Sciences website) provides examples and questions to assist with identification of study design and understanding the hierarchy of research evidence. This could be modified to include literature relevant to your individual profession and completed during class either as an example by the instructor or as small group work.

Vignette

Joe is a patient in Sara's integrative clinical practice. Joe is an avid runner and often likes to run early in the morning. He recently heard a story on the evening news that running in the morning was associated with an increase in heart attacks. He downloaded the research article from the news story and brought it in during his most recent office visit to ask for Sara's advice. Upon reading the study, Sara notes the correlational study design. She informs Joe that while the study may show a possible association between morning runs and heart attack, there may be other factors involved that were not examined in the study.

She tells Joe that it would be difficult from this particular study design to determine if the morning runs were the cause of the increased number of heart attacks and that further investigation would be needed before she could offer her advice on this association.

EP3. Discuss contemporary issues in integrative practice research, including those relative to evaluating whole practices, whole systems, disciplines, patient-centered approaches and health outcomes.

Overview

The modalities, materials and practices of complementary and integrative healthcare (CIH) sometimes present research questions that go beyond the evaluation of conventional drugs and devices. Single agents are rarely used in everyday CIH practice, and combinations of treatments are the general rule. In fact, discipline-specific whole practices may assess the patient in ways that are not distinguished in conventional medical theory before applying lifestyle measures and specific therapeutics to improve health. This competency focuses on understanding research that is designed to take into account the differences between CIH and conventional healthcare systems.

Goal- Understand research that is designed to take into account the differences between CIH and conventional healthcare systems.

Learning Objectives

1. Define CIH discipline-specific whole practice research.
2. Summarize similarities and differences of CAM discipline-specific whole practice and pharmacological/biomedical research.
3. Discuss the implications of integrated medicine research combining both CIH and conventional practices.
4. Explain the challenges of evaluating whole practice CIH research and the limitations of research that does not address them.

Resources

1. Lewith, G., Jonas, W.B., Walach, H. (2010). [Clinical research in complementary therapies: principles, problems and solutions \(2nd ed.\)](#). Churchill Livingstone. ISBN: 978-0-443-06956-7. This book (for purchase) discusses various research methodologies as well as unique issues in research conducted in integrative environments. Chapters 3 & 7 both contain short summary sections on whole systems research.
2. Ahn, A. C., Nahin, R. L., Calabrese, C., Folkman, S., Kimbrough, E., Shoham, J., & Haramati, A. (2010). [Applying principles from complex systems to studying the](#)

[efficacy of CAM therapies](#). *The Journal of Alternative and Complementary Medicine*, 16(9), 1015-1022. A publication that explores the application of complexity theory to the study of integrative systems of health care, outlines challenges, and provides future suggestions for this field of study.

3. Verhoef, M. J., Vanderheyden, L. C., Dryden, T., Mallory, D., & Ware, M. A. (2006). [Evaluating complementary and alternative medicine interventions: in search of appropriate patient-centered outcome measures](#). *BMC Complementary and Alternative Medicine*, 6(1), 38. This publication reviews the development of an outcome measures database for tools that account for a whole systems approach to research.
4. Ritenbaugh, C., Aickin, M., Bradley, R., Caspi, O., Grimsgaard, S., & Musial, F. (2010). [Whole systems research becomes real: New results and next steps](#). *The Journal of Alternative and Complementary Medicine*, 16(1), 131-137. This publication details a roundtable discussion with those who have been conducting whole systems research, outlining successes and challenges to this type of study.
5. Thorpe, K. E., Zwarenstein, M., Oxman, A. D., Treweek, S., Furberg, C. D., Altman, D. G., ... & Chalkidou, K. (2009). [A pragmatic-explanatory continuum indicator summary \(PRECIS\): a tool to help trial designers](#). *Journal of Clinical Epidemiology*, 62(5), 464-475. This publication reviews the development of a tool to classify study designs and includes discussion on the difference between these types of designs.
6. Fønnebø, V., Grimsgaard, S., Walach, H., Ritenbaugh, C., Norheim, A. J., MacPherson, H., ... & Aickin, M. (2007). [Researching complementary and alternative treatments—the gatekeepers are not at home](#). *BMC Medical Research Methodology*, 7(1), 7. This publication discusses the challenges to the biomedical model of research when applied to integrative settings, and outlines a five phase process to better address the realities of CIH practice.
7. [University of Minnesota Whole Systems Healing Modules](#) These freely available online learning modules review the concepts of what is meant by whole systems in various contexts.

Classroom Activity

Review the outcome measures provided in the [In-CAM Health Outcomes Database](#). Discuss how these measurement domains might assist in whole systems research. For an additional activity, the class could be divided into small groups and secretly assign each group one of the health outcome domains. Without revealing the domain they were assigned, have the group present a short skit demonstrating an interview with a patient designed to elicit the health outcomes for that domain. The other groups can then guess the domain being examined.

Vignette

Sara often attends grand rounds at her local hospital to help stay informed of professional developments. During a recent grand rounds, Sara shared how she has been utilizing the Consultation and Relational Empathy ([CARE](#)) questionnaire in her integrative practice. The feedback from this tool has raised her awareness of the multitude of factors that may influence patient outcomes. She is currently working on a chart review to examine the relationship between her perceived empathy levels and patient outcomes.

EP4. Analyze the research base within one's own discipline including the positive and negative interactions, indications and contraindications for one's own modalities and agents.

Overview

Patient safety is a priority to all healthcare providers. Certain techniques or practices may evolve over time based on research evidence that identifies more effective care that enhances patient safety. Keeping current with research surrounding the risks and benefits for various modalities and disciplines is the focus of this competency.

Goal- Keep current with research surrounding the risks and benefits for various levels of care.

Learning Objectives

1. Recognize the need for information to address a clinical uncertainty.
2. Formulate a searchable clinical question.
3. Identify three search engines relevant to your clinical practice.
4. Perform searches of the primary literature.
5. Demonstrate efficient information management skills to identify clinical practice guidelines/best practices.

Resources

1. Bastyr University Library guide for faculty training in EIP includes [database demos](#), search tips and strategies.
2. [Asking: Using the PICO Format to Structure a Search for Evidence](#). This section of the *Essential EBP for CAM Study and Practice Guide*, (Barbara M. Sullivan, Ph.D. 2009, freely available through the National University of Health Sciences website), reviews the PICO approach to formulating a searching clinical question. Also included are patient examples and a simple form to assist with searching.

3. Evidence Based Medicine Short Course *Asking Clinical Questions & Finding Resources*. [Course materials](#) offer several resource suggestions and are available through the National College for Natural Medicine Helfgott Research Institute website.
4. Palmer College of Chiropractic [Evidence-Based Clinical Resources](#) webpage offers a comprehensive list of various links for search engines, guidelines, review articles and journals pertinent to EIP.
5. [The Canadian Chiropractic Guideline Initiative](#) offers several resources for practitioners looking to keep current with clinical guidelines.
6. [Clinical Compass Rapid Response Resource Center](#), facilitates access to relevant peer-reviewed literature.
7. [AcuTrials@ Database](#) , maintained by the Oregon College of Oriental Medicine, offers a database of systematic reviews and randomized trials for acupuncture.
8. [Keeping Pace with Research Literature: Tips from Librarians](#). This free webinar presentation highlights several strategies to help stay up to date with research literature and organize your clinical research.
9. Seely, D., Szczurko, O., Cooley, K., Fritz, H., Aberdour, S., Herrington, C., ... & Guyatt, G. (2013). [Naturopathic medicine for the prevention of cardiovascular disease: a randomized clinical trial](#). *Canadian Medical Association Journal*, 185(9), E409-E416. This publication highlights the benefits of Naturopathic care for the treatment of metabolic syndrome and its effect on cardiovascular risk.
10. Oberg, E. B., Bradley, R., Cooley, K., Fritz, H., & Goldenberg, J. Z. (2015). [Estimated Effects of Whole-system Naturopathic Medicine in Select Chronic Disease Conditions: A Systematic Review](#). *Altern Integ Med*, 4(192), 2. This publication provides a summary of whole systems research on Naturopathic care for varied health conditions.
11. Cheyney, M., Bovbjerg, M., Everson, C., Gordon, W., Hannibal, D., & Vedam, S. (2014). [Outcomes of care for 16,924 planned home births in the United States: The Midwives Alliance of North America Statistics Project, 2004 to 2009](#). *Journal of Midwifery & Women's Health*, 59(1), 17-27. This publication outlines outcomes of care for midwife-led homebirths in the United States. .
12. [The Case for Pain Relief: 5 Research Studies for Massage Therapists](#). Freely available through the Massage Therapy Foundation, this collection examines the research evidence for the role of massage therapy in pain management.

13. Corbin, L. (2005). [Safety and efficacy of massage therapy for patients with cancer.](#) *Cancer Control*, 12(3), 158.

Classroom Activity¹

Have students install PubMed for handhelds on mobile device (or other similar mobile [applications](#)) and use the app during class to locate an article for classroom discussion or review assignment.

Another activity might include taking time during class to help students sign up for email alerts to stay current with the literature. Bastyr University has a great [guide](#) to assist. Assign students to bring one abstract to each class period.

Vignette

Sara has shied away from treating patients who are under the care of an oncologist. She was taught in her initial training, more than 20 years ago, that it would be too risky for her to treat this patient population. However, she recently attended a continuing education event that highlighted the benefits of an integrative approach to oncology care. Having little experience with this type of patient, Sara wanted to know if her own professional services would be safe and provide benefit for this patient population. Utilizing the PubMed Clinical Queries function, she found both a clinical guideline and a systematic review highlighting the benefits and safety of her techniques clinical approaches for oncology care.

EP5. Apply fundamental skills in research evaluation

Overview

Critically appraising the research literature is essential to being an evidence informed complementary and integrative practitioner. The appraisal process determines if the study is valid and minimized sources of bias, and thus assists with the decision to trust the research results. Some general factors to consider include recruitment of the study participants, how the study treatment or event was distributed, review of the protocol, and if all the participants who started the study completed it. This competency is focused on the important elements of critically appraising journal articles of each type of study design.

Goal- Understand the important elements of critically appraising journal articles.

¹ Acknowledgment to Dr. John Stites from the PIE for CAM Educators 2015 meeting of the Consortium of Evidence Informed Practice Educators.

Learning Objectives

1. Apply a structured approach in evaluating the quality, importance, and relevance of available research evidence.
2. Critically appraise relevant research, including clinical practice guidelines and best practices on the risks and benefits associated with your treatment.
3. Describe the utility of appraisal checklists and apply them when critiquing the major types of study design.
4. Discuss basic statistical methods.

Resources

1. Greenhalgh, T. (2014). [How to read a paper: the basics of evidence-based medicine \(5th ed.\)](#). West Sussex, UK: John Wiley & Sons. ISBN: 978-1-118-80096-6. This book (for purchase) walks the reader through various types of research papers with a focus on critical appraisal.
2. Menard, M. B. (2009) [Making Sense of Research \(2nd ed.\)](#) Curties-Overzet Publ. ISBN-13: 978-0968525661. This book (for purchase) reviews the basics of research literacy and evidence based practice for complementary and integrative providers.
3. Strauss, S.E., Glasziou, P., Richardson, W.S., Haynes, R.B. (2011). [Evidence-based medicine: how to practice and teach EBM](#) (4th ed.). Edinburgh: Churchill Livingstone. ISBN 978-0-7020-3127-4. This book (for purchase) provides a comprehensive overview of evidence based medicine including teaching tips and cue cards for rapid appraisal of the literature.
4. Jamison, J.R. (2005). [Fostering critical thinking skills: a strategy for enhancing evidence based wellness care](#). *Chiropractic & Osteopathy* 13(1),19. This publication reviews an educational intervention that enhanced critical appraisal skills for students.
5. [National College of Natural Medicine](#) National College of Natural Medicine has created several short courses on EBM for the development of the Vanguard Faculty. This link provides links to 8 different sections of the course materials that cover critical appraisal of various study designs as well as statistics.
6. Vickers, A. (2010). [What Is a P-value Anyway? 34 Short Stories To Help You Actually Understand Statistics](#). Addison-Wesley. ISBN-10: 0321629302. This book (for purchase) is a fun approach to learning statistical concepts.
7. Harris, M., & Taylor, J. (2014). [Medical statistics made easy](#). Scion Publishing Ltd. ISBN-13: 9780763772659. This book (for purchase) presents statistical concepts for health care professionals.

8. [Evidence-based Medicine Series](#). This series of papers (freely available through the Canadian Medical Association Journal) provides tips for learning statistics. The on-line appendix for each article also provides tips for educators on teaching these skills.
9. [Foundations of Evidence Informed Practice Learning Modules](#) This series of interactive on-line learning modules (freely available through the University of MN Center for Spirituality & Healing website) offers four modules on statistics. . If you decide to use these modules in your course, please email Dr. Roni Evans (evans972@umn.edu) to track use and receive notification of the most up to date version.
10. [Critically Appraised Topic \(CAT\)](#) This video (provided courtesy of The University of Western States) details the process of infusing EIP into the broader curricula outside of dedicated EIP courses. Instructional tips, assessment strategies and rationale to incorporate EIP are discussed.
11. [The University of Western States](#) created an EIP "CAT guide", short for Critically Appraised Topics. This walks the student through the critical appraisal process. The link takes you to the EIP resources page, from here click on the CAT link. The [CAT prep document](#) provides a step-by-step guide to prepare a presentation of a CAT to your peers complete with a grading rubric.
12. [Critical Appraisal for Research Papers Appraisal Checklist and Guide Questions](#) is freely available from the National University of Health Sciences.
13. The [EQUATOR Network](#) hosts links for the major reporting guidelines for research literature.

Classroom Activity

Utilize one of the review forms below to assist in evaluating an article during class discussion. These documents (courtesy of the University of Western States) provide tools to summarize the EBP process and assess the validity and quality of differing study designs.

- [Harm Critical Review form \(case control, cohort study\)](#)
- [Systematic Review](#)
- [Therapy Review](#)
- [Prognosis Review](#)
- [Diagnostic Test Critical Review Form](#)

Vignette

Sara recently searched the literature to answer a clinical question surrounding the effectiveness of an integrative treatment for low back pain. She found a systematic review

that concluded this therapy was effective. Sara compared the components of the article with the [PRISMA](#) (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist for systematic review reporting guidelines and found the article contained the appropriate sections and topics. She noted that the authors fully described an extensive and complete search for relevant studies, including multiple databases and grey literature. The inclusion criteria was clear, but stringent, possibly too stringent to include studies with patients similar to Sara's practice. The results were clinically significant, with narrow confidence intervals. Sara weighed the positive outcomes and rigorous study design with the stringent inclusion criteria and decided that this study would have a strong impact on her practice.

EP6. Demonstrate evidence informed decision-making in clinical care.

Overview

A key component of evidence informed practice is incorporating the best available research evidence into patient care. While a provider will need to identify a clinical question, locate relevant resources of information, and critically evaluate the information, the EIP process is not complete without applying the relevant evidence in clinical practice². This competency focuses on determining the applicability of the research to answer the clinical question, incorporating this research evidence into practice, and assessing these decisions through patient health outcomes.

Goal- Determine the applicability of the research to answer the clinical question, incorporating the research evidence into practice, and assessing these decisions through patient health outcomes.

Learning Objectives

1. Identify resources that facilitate the use of research evidence for clinical problem solving.
2. Synthesize information from multiple resources to make a clinical decision³.
3. Utilize research evidence, in combination with the patient values and preferences, to inform a care plan.
4. Assess the impact of your decision on health outcomes.

Resources

1. Greenhalgh, T. (2014). [How to read a paper: the basics of evidence-based medicine \(5th ed.\)](#). West Sussex, UK: John Wiley & Sons. ISBN : 978-1-118-80096-6. Chapter

² Competency in EP4 is critical to competency in EP6.

³ From the 2013 Accreditation Council for Graduate Medical Education and The American Board of Family Medicine, *Family Medicine Milestones*.

16 of this book (for purchase) summarizes various ways to integrate the patient perspective with research evidence.

2. Guyatt, G., Rennie, D., Meade, M.O., Cook, D.J., (2015). [Users' Guides to the Medical Literature. A Manual for Evidence-Based Clinical Practice](#), 3rd Ed. McGraw-Hill Education. ISBN 978-0-07-179071-0. This book (for purchase) provides a comprehensive overview of evidence based medicine. Chapter 27 reviews various decision making approaches between a provider and patient.
3. [Research in Clinical Practice](#)- This freely available self-paced on-line module (listed under section #2) discusses various resources for summary research, how to choose them and a clinical example of applying these resources. If you decide to use this module in your course, please email Dr. Roni Evans (evans972@umn.edu) to track use and receive notification of the most up to date version.
4. [Assessing Older Patients with the Evidence in Mind](#)- A short summary on how students at Palmer College of Chiropractic are taught to integrate evidence based tools into their clinical practice.
5. [DynaMed](#) is a point of care tool that includes pre-appraised evidence based summaries. This service requires a yearly subscription either through an institution or as an individual. A tree trail is available.
6. [PEDro](#) Physiotherapy Evidence Database is a free source of pre-appraised literature often used for chiropractic care.
7. [Natural Medicines Database](#) is a pre-appraised resource for integrative therapies and supplements. This service requires a monthly subscription either through an institution or as an individual.
8. The University of Western States has created [EIP "cue cards"](#) for clinical use. These cards contain concise EIP definitions and tips for applying EIP in clinic.
9. [ABCD FIX](#): A mnemonic for rapidly checking the quality of an RCT on therapy. Available from the University of Western States, this is a quick way to assess while in the clinic setting.

Classroom Activity

[EIP Assignment](#) This document (courtesy of Northwestern Health Sciences University) provides a student worksheet and grading rubric for EIP skills assessment. Additional worksheets from the assignment can be found [here](#). One way to utilize this resource might include a three class series based on a case that the students are observing in clinic. A different portion of the assignment could be discussed and assigned at each class.

Vignette

Sara volunteers at an integrative community clinic. Today she is seeing a new patient that presents with a condition she rarely sees in her practice. It has been several years since she has seen this condition but Sara remembers successful outcomes with an herbal remedy. Sara uses her iPad to check the weight of the research evidence for this remedy in Natural Medicines database. Her search indicates that there is stronger research evidence for a different herbal remedy than what she used last time. Sara then searches PubMed on her iPad and finds a recent RCT that concluded this new remedy is safe and effective. She uses the [ABCDFIX](#) mnemonic to get a sense of the study validity. Both the study and the pre-appraised source indicate the newer herbal remedy is effective. Sara discusses this information with the patient and asks the patient how comfortable they are with this approach. The patient expresses some concern over taking the herbs several times a day, one of the drawbacks to this newer herbal remedy. Together they devise a treatment plan that fits with the schedule.

EP7. Discuss the value of evidence informed risk management planning and risk management behavior.

Overview

Providers need to explain the potential benefits, risks, and interactions of the modalities they use to health care colleagues, patients, and care givers. This includes discussing the research evidence that lowers the risk to the patient and provides value to care. This competency focuses on utilizing research evidence to support effective communication of your profession's indications and contraindications.

Goal- Utilize research evidence to support effective communication of your profession's indications and contraindications.

Learning Objectives

1. Define risk management planning in the context of integrative healthcare.
2. List common practices for your field to mitigate risks to the patient.
3. Explain cautions and contraindications within your discipline.
4. Summarize research supporting potential efficacy and/or safety of your discipline.
5. Discuss areas of potential adverse interactions with other modalities.

Resources

1. Gilmour, J., Harrison, C., Asadi, L., Cohen, M. H., & Vohra, S. (2011). [Hospitals and complementary and alternative medicine: managing responsibilities, risk, and potential liability](#). *Pediatrics*, 128(Supplement 4), S193-S199. This publication

summarizes the risk and liability concerns surrounding the incorporation of integrative care into conventional medical hospital settings.

2. American Society for Risk Management has several freely available white papers through their [website](#). These resources provide insight into conventional medical approaches to mitigate risks to the patient and reduce liability.
3. The U.S. Department of Health and Human Services, Health Resources Services Administration (HRSA) offers several [resources](#), including a freely downloadable risk management plan.
4. National Chiropractic Mutual Insurance Company (NCMIC) provides multiple risk management [resources](#) as well as suggestions to minimize [clinical risks](#).
5. [Basic Risk Management for Massage Therapists](#) available from Associated Bodywork & Massage Professionals (ABMP).
6. Micozzi, M. S. (2006). [*The practice of integrative medicine: A legal and operational guide*](#). Springer Publishing Company. ISBN-13: 978-0826103079. This book (for purchase) reviews key issues in interprofessional care environments both for individuals as well as institutions including liability risks.
7. Cohen, M. H., Hrbek, A., Davis, R. B., Schachter, S. C., & Eisenberg, D. M. (2005). [Emerging credentialing practices, malpractice liability policies, and guidelines governing complementary and alternative medical practices and dietary supplement recommendations: a descriptive study of 19 integrative health care centers in the United States](#). *Archives of Internal Medicine*, 165(3), 289-295. This paper outlines a pilot study to examine policies (including risk management) at integrative care centers located within hospital settings.

Classroom Activity

Split the class into small groups and assign a current article highlighting the benefits, or risks, of your professional services. Each group reviews the article and formulates a script/argument to support your services based on the information in the article. During class, each small group could present their argument to the entire class for discussion.

Vignette

Sara would like to grow her practice, and provide a service to her community, by seeing patients at her local hospital. She arranged to meet with hospital administrators to pitch a proposal that would bring her integrative care to the hospitals patients. While the administrators were impressed with Sara's passion and operational details in her proposal, they had several questions about the research behind the clinical benefits and risks for their patients. Sara confidently reviewed several recent research studies highlighting the

risks and benefits of her clinical approaches for the most common conditions that the hospital treats.

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