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Nursing Journal Club Facilitator's Workbook



*Achieving Excellence through
Continuous Improvement and Innovation*

Developed by Marianne Davies, APRN



Acknowledgments

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Congratulations on taking on the role of Journal Club Facilitator! This workbook will help you to get started and stay keep organized.

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Introduction

Journal Clubs have been used for several decades as a mechanism to promote the evaluation of research. The purpose of a Journal Club is to enhance nurses' knowledge of the research process and the ability to appraise and synthesize research studies. Journal Clubs serve as a venue to discuss research and non-research evidence in relation to clinical practice, disseminate research results into practice, and reinforce the need to base practice on evidence. Participation in a Journal Club helps nurses to engage in evidence-based activities and pique interest in conducting nurse-driven research studies. The use of new knowledge gleaned from participation in Journal Clubs can lead to improved quality of care for patients and families.

For more information, please visit the Journal Club site. You can access it from one of the YNHH Nursing website locations below or go directly to the Medical Library and select Nursing resources:

Center for Professional Practice Excellence site

Nursing Research and Evidence-based Practice Committee site

From this site you will be able to:

- Print this Workbook and tools for conducting your Journal Club
- Have easy access the journals recommended by the Nursing Professional Governance Councils
- Find informative articles posted by both YNHH System and YNHH Charters
- Access all of the up-to-date articles published by YNHH staff

A hearty thank you to Janene Batten our Nursing Librarian for creating this site!

Section 1: Facilitator Responsibilities

■ Prior to the Start of a Journal Club

- Meet with your Patient Service Manager (PSM) to discuss your interest in establishing a unit-based Journal Club. Ask for assistance in finding a Journal Club mentor. Ask to be added to agenda of next staff meeting to assess staff interest in participation.
- Identify your resources and recruit co-facilitators (see form in Section 2)
- Review different Journal Club formats (see form in Section 4)
- At a staff meeting or your first Journal Club meeting, promote shared decision making regarding the purpose of your unit's Journal Club. Ask staff to help identify what their goals are for participation. Assure that all staff has access for participation (See Shared-Decision Making Form in Section 5)
- Reserve room/space for meeting; Consider whether will you need access to a computer.

■ Prior to the Meeting: Selection and Critique of a Journal Article

- Meet with your Journal Club mentor to discuss article selection
- Select an article that is based on a topic of interest of the staff. For the first few meetings, consider selecting a national evidence-based practice guideline. Focus on articles that have potential for direct clinical application. Avoid articles that report results of complex clinical trials that are statistically difficult to understand.
- Conduct an initial article review so you become familiar with the process using the *Table for Critiquing of Research Literature Form* (see Section 10)
- Develop leading discussion questions prior to the meeting (examples below)
 - How would you apply the findings of this article to your clinical setting?
 - What were some of the limitations of the study?
 - Is the evidence strong enough to support a practice change on your unit?

■ Advertising Journal Club Meeting

- Create Journal Club poster or signage
- Post article on unit bulletin board
- Have copies available in common staff areas
- Email Journal Club poster and article link to participants

■ Leading Group Discussions

- Keep an open-mind and sense of humor!
- Respect staff time: Start and finish at designated times
- Ask for volunteer to complete *Critique of Research Literature Form* (Section 10)
- Ask for volunteer to complete *Discussion Summary* (Section 11)
- First provide a 5-10 minute summary of article
- Encourage participation by asking open-ended questions
 - “Who would like to share their thoughts about the article?”
 - “We are interested in how others feel about the article....”
- Provide positive feedback for sharing of ideas
- Control your own biases in leading discussion, encourage participants to discuss different opinions
- Redirect conversation if it drifts “off-topic”
- Provide summary at end of discussion

■ Post-Meeting

- Create a Journal Club binder to keep organized and track your Club’s progress
- Keep copies of the following:
 - Articles discussed
 - Completed *Critique of Research Literature Forms* and *Journal Club Discussion Summaries* (see form in Section 10 and 11)
 - Participants attendance documented in the Journal Club Discussion Summary form
- Post *Discussion Summary* on Journal Club Bulletin Board
- Discuss outcomes of Journal Club in staff meetings
- Be an Evidence-based Practice Role Model. If the results of an article critique indicate that an evidence-based practice change is warranted, demonstrate how to apply the results of research into practice by discussing recommendations with your Shared Governance Cluster Council representatives. Support staff involvement in completing the online *Shared Governance Change Request Form* (see Appendix F).

Section 2: Identify Your Resources

It is important to identify colleagues that can support the success of your Journal Club. Consider all members of your professional care team who might serve as a mentor or resource person. Ask each person if they will be willing to support the Journal Club in one of these roles.

Journal Club Co-Facilitators	
Patient Service Manager	
Assistant Patient Services Manager	
Service Line Educator	
Staff Nurse Champions	
Clinical Nurse Specialist	
Advanced Practice Providers	
Nursing Research Committee Member	
Medical Librarian	
Pharmacist	
Nutritionist	
Other	
Other	

Section 3: Participant's Responsibilities

- Actively participate in shared decision making to design your units Journal Club
- Read selected article(s) prior to the scheduled meeting
- Take notes on article
- Be prepared to discuss the article by answering the following:
 - How does this article apply to my practice?
 - What level of evidence is represented in this article?
- Using *Table for Critiquing Research Literature*, select and present a critique for part of the article (i.e. setting, population, findings, applicable to other settings)
- Volunteer to take on the discussion lead for a particular topic of interest. This provides participants with an opportunity to practice presentation skills. Also provides others the opportunity to practice giving feedback.
- Volunteer to scribe for the Journal Club session by completing the *Table for Critiquing Research Literature* or the *Journal Club Discussion Summary* (see forms in Sections 10 and 11)
- If there are unanswered questions at end of session, volunteer to find out the answer and share your findings at the next Journal Club.

Section 4: Journal Club Formats

■ On Unit Meetings

- Duration: 15 minutes, 30 minutes, or up to 60 minute (maximum)
- Frequency: Monthly, bi-monthly
- Schedule: Breakfast meeting, Lunch & Learn, evening session
- Offer two different times for nurses on all shifts to participate
- Use existing Huddles to discuss part of an article daily for one week
- Schedule joint Journal Clubs with another unit, especially if your unit is small
- Consider a Journal Club exchange: Invite nurses from other units to attend unit Journal Club if the topic is appealing to both
- Use a debate-team format during critique, which encourages staff to defend their interpretation of the study
- Invite members of other disciplines to attend as relevant to an article (respiratory therapy, pharmacist, nutritionist, etc.); Promotes inter-professional collaboration.

■ Virtual Journal Club

- Post journal article on bulletin board with area for each staff member can add comments over a week.
- Review the discussion in Staff Huddle at end of week

■ Web-cast, video-conferencing, or Skype Journal Club (for staff to participate from remote locations or on a day off)

■ Traveling Journal Club:

- Select article in collaboration with another unit, rotate the location of the discussion from one unit to another
- Post copy of article on board with discussion questions
- Provide area for staff to enter comments
- Rotate the board among units or in different areas of your unit or clinic

Section 5: Shared Decision Making Form

How to Format our “Unit Based Journal Club”

Journal Clubs are structured in a variety of ways. The structure of your Journal Club will be based on what your unit is able to manage. Review the following topics with your colleagues to design of your Journal Club.

Purpose		
Generate clinical questions	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Disseminate new knowledge	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Improve critical literature appraisal skills,	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Discuss practice variations and opportunity to standardize using best evidence	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Generate ideas for future research	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Promote professional development	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Provide an enjoyable educational occasion	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Ensure professional practice is evidence-based	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Learn about research methodology	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Provide opportunities for training in clinical decision-making	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Inform guideline development	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Provide education based on identified needs	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Provide forum for CEU's	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Format		
On-unit	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Virtual on Bulletin Board	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Web-cast, video-conferencing, or Skype	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Joint Unit Journal Club	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Other: (describe)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duration		
15 minutes	Yes <input type="checkbox"/>	No <input type="checkbox"/>
30 minutes	Yes <input type="checkbox"/>	No <input type="checkbox"/>
60 minutes	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Frequency		
Each shift per month	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Two sessions per month	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Monthly	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Bi-monthly	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Day of the Week (write in)		
Meeting Time (write in)		

Section 6: Monthly Facilitator Checklist

The following checklist will help keep you organized for each Journal Club.

Meeting Logistics	Date Completed	Comments
Date and time selected		
Room selected		
Announcement printed and posted		
Clinical content expert identified and invited		
Arrangement for food		
Article		
Article selected		
Initial article critique completed		
Article disseminated to staff		
Article posted on Board		
Leading questions posted for staff		
Journal Club Session		
Recorder identified		
Discussion summary form completed		
Discussion summary posted for staff		

Section 7: Promoting Interest

The key role of Journal Club Facilitators is to encourage participation of staff nurses. Several strategies can be used to stimulate interest and enthusiasm among staff members. Try one or all of these methods. Be creative and come up with other ideas that best fit the culture on your unit.

- Discuss formation of the Journal Club at staff meeting and focus on the benefits associated with participation
- Have a “Naming” contest for your club
- Establish several modes of communication about the dates, times, and location of the Journal Club
 - Post a “Journal Club Announcement” flyer 2 weeks prior to each meeting (see example below)
 - Send a “Save-the-Date” email to staff
 - Remind staff about the upcoming session during huddles and change of shift report outs

Yale-New Haven
NURSING
Cancer Care Center

SMILOW CANCER HOSPITAL
AT YALE-NEW HAVEN

The Smilow Society

A Journal Club for Oncology Nurses

April 2012

In this Issue

Value of Certification

CJON
December 2010

Meeting Time
April 24th
8 am –9 am
NP 4 101A

To locate this months article and more information log onto <http://www.ons.org/Publications/CJON>

What is a Journal Club?

- An **Open Forum** to evaluate oncology nursing literature.
- An opportunity for **Collaboration** with nurses from a variety of areas
- A place to discuss how oncology literature and research can be translated into **Best Practice**

Who can join the Society?

- Any oncology nurse who is interested in improving the quality of cancer care.

Growing Knowledge Together

- Create a “Frequent Attendee Card” (see example below)
 - Decide on a “reward” for consistent attendance (examples: recognition certificate, announcements on staff bulletin board, gift certificate)

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MAGNET ACCREDITED

Journal Club Participation Card

Name: _____

Practice Setting: _____



Please check off each session attended

1	2	3	4	5	6
7	8	9	10	11	12

Level of evidence + quality of evidence = strength of evidence and confidence to act

- Facilitator posts questions related to the article on the Journal Club bulletin board (example: *Question of the Day*)
- Encourage staff members to post questions about the article and have other staff post the answers or bring their responses to the Journal Club
- Post “Buzz Word” of the day selected from the article to peek staff’s interest in reading the article
- Invite staff members from other units or disciplines to join
- Provide food or encourage others to bring a refreshment

Section 8: How to Select an Article

- **Selecting an article for review can be time consuming.** Use these questions to help your selection for each session.
 - What topics are we interested in? For example, is it performance improvement, evidence-based practice, patient and family education, and/or nurses work-life balance?
 - What clinical challenges have we faced on our unit?
 - Does a staff member have an interest in conducting a nursing research project?
 - What quality metrics are being measured on my unit? Do we have firm understanding of how our practice impacts these metrics?
 - What new practice changes have been implemented? Do I have an understanding of the evidence supporting the practice change?
 - Is there a new drug or therapeutic intervention being introduced on my unit? Do I feel confident in the mechanism of action and my responsibilities associated with this new drug or intervention?
 - Do I/we have a real-time clinical question? Convert this question or problem into a PICO statement to help with conducting an electronic literature search for the latest evidence
 - Population
 - Intervention
 - Comparison
 - Otcomes
- Search the literature (see Appendix A and B for resources); Access the YNHH Journal Club website by going to the Nursing Website →Committees →Research, then scroll down the page
- Select articles that have associated Continuing Education Units (CEUs) already designated through professional journals
- Selection may include but not limited to original research, reviews or expert opinion
- Professional practice guidelines can provide a starting point for a Journal Club discussion
- Provide supporting articles

Section 9: How to Appraise an Article

The goals of a research appraisal are to formulate a general evaluation of the merits of the study and to evaluate its applicability to clinical practice. When doing a review, there are critical points in the process. Follow the recommendations in the *Table to Appraise Research Literature* (see Appendix C). However, avoid “pulling the paper to bits”.

- Provide overview of the article
- Is the article timely and relevant?
- Is this a reputable journal? Peer reviewed journal?
- What type of research article is being discussed? (See Appendix C)
- What level of evidence does this article demonstrate? (See Appendix D)
- Conduct a critique of the article using the *Table for Critiquing Research Literature* (see Section 10)
 - Purpose: Is the problem statement clearly articulated? Are the objectives and aims clear?
 - Introduction & Background:
 - Is it well described?
 - Does the literature review support the problem?
 - Are the references current and from respected sources?
 - Methods
 - Study design, setting, sample size and characteristics
 - Study procedures, instruments, human subjects protection, data analysis
 - Results and Conclusions - Are conclusions supported by the results?
- Is this research study relevant to my practice setting?
- Can the results be generalized to my practice setting?
- How does this compare to our practices, policies and procedures?
- Do the findings suggest a need for an evidence-based practice change?
- Do the results suggest further research to support the findings?

Section 11: Journal Club Discussion Summary

Practice Setting:	Date:	Time:
Participants		
Author and Title of Article:		
Discussion:		
Clinical Implications and Potential Practice Change:		
Potential Research Questions / Future projects:		

Place copy in Journal Club Binder for future reference at completion of each session. Post another on bulletin board for promotion of discussion.

Section 12: Sample of First Meeting

■ Facilitator sets the stage by using shared decision making strategies

- Discuss Journal Club purpose & goals
- Chose its format, length and frequency
- Discuss roles of facilitator and participants
- Review critique tools
- Discuss “Ground Rules” for the meetings
 - ✓ Each person has a chance to speak
 - ✓ Each participant is courteous of others speaking
 - ✓ One person will not dominate meeting
 - ✓ Only one person talking at a time, no interruptions - Journal club is “safe ground” for discussions
 - ✓ Give “respectful feedback”
 - ✓ Be-open to a variety of ideas expressed by participants
 - ✓ Consider feedback carefully
 - ✓ No arguments directed at “staff/persons”, may debate an idea
 - ✓ Respect group members’ time
 - ✓ Everyone is responsible for following and upholding rules

■ Conducting the critique of the first article

- Ask co-facilitator to take notes during meeting
- Discuss why the article was selected
- Provide overview of the article: plan to present for < 10 minutes (Remember goal is for discussion!)
- Discuss and critique article using *Table for Critiquing Research Literature form*
- Encourage each nurse to participate by asking them to:
 - Identify implications for nursing and your practice
 - Identify topics for future review
- Provide summary or wrap-up of discussion in last 5 minutes
- Disseminate the notes following the discussion

Section 14:

Appendix A: Electronic Resources

- YNHH Nursing Journal Club – access from Center for Professional Practice or Nursing Research and Evidence-based Practice website
 - Contact the Center for Professional Practice Excellence (CPPE) if you wish to offer CE credits to learn how to apply

- Medical Library – links to electronic databases
 - OVID: Search for nursing and allied health professions www.ovid.com
 - CINAHL: Cumulative Index to Nursing and Allied Health Literature
 - Up-to-Date
 - Cochrane Collaborative (<http://www.cochranejournalclub.com>)
 - MEDLINE:

- Other electronic resources
 - Professional organization websites
 - Professional organizational guidelines
 - National Guidelines Clearinghouse
 - QSEN <http://www.qsen.org>
 - Agency for Healthcare Research and Quality (<http://www.ahrq.gov>)
 - US MLA <http://www.mlanet.org/education/telecon/ebhc/clubintr.html>

APPENDIX B: Journal Suggestions

- *AACN Advance Critical Care*
- *Advances in Nursing Science*
- *American Journal of Critical Care*
- *Applied Nursing Research*
- *Clinical Journal of Oncology Nursing*
- *Clinical Nursing Research*
- *Evidence-Based Nursing*
- *Heart & Lung*
- *International Journal of Nursing Practice*
- *Journal of Obstetric, Gynecologic & Neonatal Nursing*
- *Journal of Advanced Nursing*
- *Journal of Cardiovascular Nursing*
- *Journal of Emergency Nursing*
- *Journal of Nursing Administration*
- *Journal of Nursing Scholarship*
- *Journal of Peri-Anesthesia Nursing*
- *Medsurg Nursing*
- *Nursing Research*
- *Oncology Nursing Forum*
- *Worldviews on Evidence Based Nursing*

APPENDIX C: Appraisal Tool (see Journal Club site for nonresearch tool)

Yale New Haven Health
Nursing Research and Evidence-Based Practice Committee
Research Literature Appraisal Tool

Article Number	Author(s):				
	Article Title:				
	Journal:				
	Year Published:	Volume:	Number:	Pages Numbers:	
Level of Evidence and Grading: Fill in after completing appraisal (see Appendix A)					
Level of Evidence (Circle one):			Quality Grade (Circle one):		
I II III IV V			High Good Low		
Is this a reputable source of evidence? Yes <input type="checkbox"/> No <input type="checkbox"/>					

Appraisal Category		Summary	Appraisal
*Quantitative Study	#Qualitative Study		
Define independent & dependent variables	None used	Study purpose, aim, research questions and/or hypothesis:	Was information presented clearly? <input type="checkbox"/> Yes <input type="checkbox"/> No
Theoretical or conceptual framework	Philosophical underpinnings	Study framework or philosophical underpinnings, if evident:	Was information presented clearly? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
All relevant literature and or seminal work		Justification for the study: (problem statement [background] literature review)	Does this section address what is known and not known about the problem? <input type="checkbox"/> Yes <input type="checkbox"/> No Described how study would address gaps in knowledge? <input type="checkbox"/> Yes <input type="checkbox"/> No
See Appendix A Descriptive	See Appendix B Narrative	Study Methods: <i>Design</i>	Was design appropriate? <input type="checkbox"/> Yes <input type="checkbox"/> No

Appraisal Category		Summary	Appraisal
*Quantitative Study	#Qualitative Study		
Quasi-experimental Experimental	Phenomenology Grounded theory Ethnography Case study		
No differentiation between study types		Study Methods: <i>Setting</i>	Was the setting appropriate for study design? <input type="checkbox"/> Yes <input type="checkbox"/> No If multiple settings, were they appropriate for study design? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Probability sampling (i.e. random) Non-probability (i.e. convenience) Sample size: based on statistical test used and power analysis – goal to generalize results other populations	Purposeful or Theoretical sampling Sample size: based on judgment and experience often smaller than quantitative – goal to gain deeper understanding of concept	Study Methods: <i>Sample (Describe sampling strategy, inclusion/exclusion criteria, sample size, and characteristics of sample [i.e. people, places, events])</i>	Was sample size sufficient based on study design and data analysis? <input type="checkbox"/> Yes <input type="checkbox"/> No *Was sample representative of population under study? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA *If an intervention was used were sample characteristics equivalent between control and intervention groups?
Data Collection Methods: Surveys (include response rate) Measurement instruments, tools, questionnaires) If intervention used, describe fidelity or how researcher made sure the	Data Collection Methods and techniques: Interviews, focus groups, observations, documents, (audio and videotaping, field notes) Collection and Analysis often occur simultaneously	Study Methods: <i>Study Procedures (Describe *interventions, if tested, data collection methods, measurement instruments or data collection tools [including interview guides], timing/sequencing of data collection, human subjects protection)</i>	Was data collection method described clearly? <input type="checkbox"/> Yes <input type="checkbox"/> No Was data collection method a good fit with the study purpose and design? <input type="checkbox"/> Yes <input type="checkbox"/> No *For surveys, was response rate adequate (≥25% to 40%)? *Were measurement instruments validity and reliability discussed (psychometrically tested with adequate reliability (Chronbach alpha ≥0.70)?)

Appraisal Category		Summary	Appraisal
*Quantitative Study	#Qualitative Study		
intervention was consistently used with all subjects.			*If intervention used, was it described clearly? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA #Was rigor discussed (credibility, transferability, dependability, confirmability) (see Appendix C Table 3) <input type="checkbox"/> Yes <input type="checkbox"/> No
See Appendix C Descriptive statistics Bivariate analysis Multivariate analysis	See Appendix B Organizing data Reading & memoing Coding and themes Interpreting data Presenting data	Study Methods: <i>Data Analysis</i> (Describe methods used to analyze data)	Were the analysis methods appropriate? <input type="checkbox"/> Yes <input type="checkbox"/> No
No differentiation between study types		Results: (Summarize results)	Are results presented clearly? <input type="checkbox"/> Yes <input type="checkbox"/> No Are charts, graphs, tables easy to understand? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA If used, was description consistent with information found on them? <input type="checkbox"/> Yes <input type="checkbox"/> No #Were narratives used to support results? <input type="checkbox"/> Yes <input type="checkbox"/> No
No differentiation between study types		Limitations: (Summarize limitations)	Were limitations identified and addressed? <input type="checkbox"/> Yes <input type="checkbox"/> No
No differentiation between study types		Clinical Significance: (Focus on implications that this study has for nursing practice)	Does study contribute to nursing knowledge? <input type="checkbox"/> Yes <input type="checkbox"/> No Are the study results generalizable/transferable to our practice setting? <input type="checkbox"/> Yes <input type="checkbox"/> No Do the results warrant examining our current practice for changes? <input type="checkbox"/> Yes <input type="checkbox"/> No

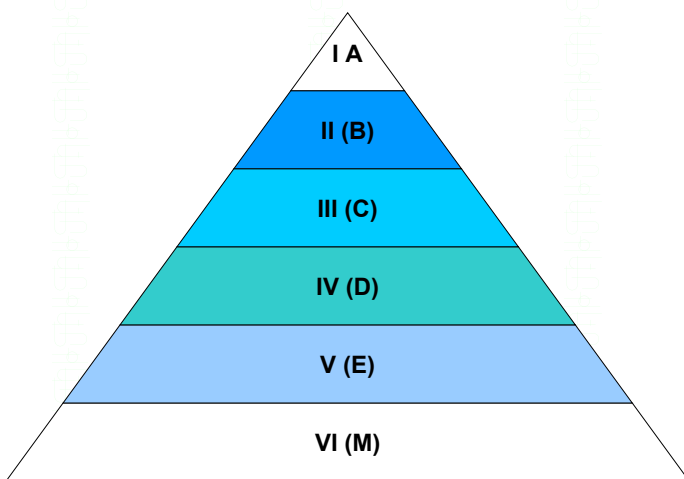
Appendix A

Level and Grading of Evidence by Project Methods

Level I Evidence	
Systematic Review	A summary of evidence, typically conducted by an expert or expert panel on a particular topic, that uses a rigorous process (to minimize bias) for identifying, appraising and synthesizing studies to answer a specific clinical question and draw conclusions about the data.
Meta-Analysis	A process of using quantitative methods to summarize the results from multiple studies obtained and critically reviewed using a rigorous process (to minimize bias) for identifying, appraising and synthesizing studies to answer a specific question and draw conclusions about the data gathered. The purpose of the process is to gain a summary studies (i.e. a measure of a single effect) that represents the effect of the intervention across multiple studies.
Randomized Controlled Trial (RCT)	A true experiment, (i.e., one that delivers an intervention or treatment), the strongest design to support cause and effect relationships, in which subjects are randomly assigned to control and experimental groups.
Level II Evidence	
Quasi-experiments	Design that test the effects of an intervention or treatment but lacks one or more characteristics of a true experiment (e.g. random assignment; control or comparison group)
Level III Evidence (Non Experimental)	
Cohort Study	Longitudinal study that begins with the gathering of two groups of patients (the cohort), one that received the exposure (e.g. to a disease) and one that does not, and then following these groups over time (prospective) to measure the development of different outcomes (diseases).
Case-Control Study	A type of research that retrospectively compares characteristics of an individual who has a certain condition (e.g., hypertension) with one who does not (i.e., a matched control or similar person without hypertension); often conducted for the purpose of identifying variables that might predict the condition (e.g., stressful lifestyle, sodium intake).
Cross Sectional Study	A study designed to observe an outcome or variable at a single point in time, usually for the purpose of inferring trends over time.
Correlational Descriptive Study	A study that is conducted for the purpose of describing the relationship between two or more variables.
Correlational Predictive Study	A study that is conducted for the purpose of describing what variables predicts a certain outcomes.
Descriptive Study	Studies conducted for the purpose of describing the characteristics of certain phenomena or selected variables.
Qualitative Study	Research that involves the collection of data in a nonnumeric form, such as personal interviews, usually with the intention of describing a phenomenon.
Level IV Evidence	
Clinical Practice Guidelines/ Consensus Panels	Opinion of respected authorities and/or nationally recognized expert committees/consensus panels based on scientific evidence i.e. National Guideline Clearinghouse

Level V Evidence (Based on experiential and non research evidence)	
Case Reports	Reports that describe the history of a single patient, or a small group of patients, usually in the form of a story.
Case Study	An intensive investigation of a case involving a person or small group of persons, an issue or an event.
Expert Opinion/ Manufacturer's Recommendations	

Melnyk, B. & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing and healthcare: A guide to best practice (2nd Ed.)*. Philadelphia: Lippincott Williams and Wilkins.



Level of Evidence	Type of Evidence
Strongest I (A)	Evidence from systematic review or meta-analysis of multiple controlled studies with results that consistently support a specific action, intervention or treatment
II (B)	Evidence from at least one well designed controlled study, randomized & non-randomized, with results that support a specific action, intervention or treatment
III (C)	Evidence from qualitative studies, descriptive or correlational studies, integrative reviews or randomized controlled trials with inconsistent results
IV (D)	Evidence from peer reviewed professional organizational standards, with clinical evidence to support recommendations; Includes non-experimental studies
V (E) Weakest	Evidence from theory based evidence from expert opinion or multiple case reports; Interpretation of non-research based information by experts
VI (M)	Manufacturers' recommendations only

Based on: AACN's evidence-leveling system

Arnola, R.R., Bourgault, A.M., Halm, M.A., Board, R.M, Bucher, L, Harrington, L., Heafey, C... & Medina, J. (2009). Upgrading the American Association of Critical-Care Nurses' evidence-leveling hierarchy. *American Journal of Critical Care*, 18, 405-409.

Level of Evidence	Quality Grading Guides
Level I	A High quality: consistent results, sufficient sample size, adequate control, and definitive conclusions; consistent recommendations based on extensive literature review that includes thoughtful reference to scientific evidence.
Level II	B Good quality: reasonably consistent results, sufficient sample size, some control, and fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence
Level III	C Low quality or major flaws: little evidence with inconsistent results, insufficient sample size, conclusions cannot be drawn.
Level IV	<p>A High quality: well-defined, reproducible search strategies; consistent results with sufficient numbers of well-designed studies; criteria-based evaluation of overall scientific strength and quality of included studies, and definitive conclusions</p> <p>B Good quality: reasonably thorough and appropriate search; reasonably consistent results, sufficient numbers of well-designed studies, evaluation of strengths and limitations of included studies, with fairly definitive results</p> <p>C Low quality or major flaws: undefined, poorly defined, or limited search strategies; insufficient evidence with inconsistent results, conclusions cannot be drawn</p>
Level V	<p>A High quality: expertise is clearly evident.</p> <p>B Good quality: expertise appears to be credible.</p> <p>C Low quality or major flaws: expertise is not discernable or is dubious.</p>

Appendix B

Table 1: Traditions of Qualitative Research (Study Methods)

Tradition	Purpose	Key Elements
Narrative	Exploring the life of a single individual or small group of individuals	<ul style="list-style-type: none"> • Studies one or more individuals • Uses interviews primarily • Develops narratives, usually chronologically, about lives
Phenomenology	Understanding the lived experience of a phenomenology	<ul style="list-style-type: none"> • Studies multiple people experiencing the same phenomenon • Uses interviews primarily • Uses data saturation for sampling • Describes the “essence” of the experience that is shared
Grounded Theory	Developing theory based on field-collected data	<ul style="list-style-type: none"> • Studies a process or action • Uses interviews primary • Uses open, axial, and selective coding • Uses theoretical sampling • Generates a graphical representation of the theory
Ethnography	Describing elements of a culture-sharing group	<ul style="list-style-type: none"> • Studies a group with the same culture • Uses observations and interviews • Analyzes data to determine cultural traits shared by a group
Case Study	Developing an understanding of a single case or multiple related cases	<ul style="list-style-type: none"> • Studies an event or activity, or multiple persons • Analyzes cases to determine themes within and between cases

Source: Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Table 2: Data Analysis in Qualitative Research

Data Analysis Step	Details
Organizing Data	Converting raw data into organized units such as transcribed interviews into electronic format
Reading and Memoing	Reviewing the entirety of data collected for immersion before development of codes and themes
Coding and Developing Themes	Categorizing pieces of data into codes (small categorizes of information) and reducing codes into themes (broad units of categories comprised of codes)
Interpreting Data	Drawing connections between themes and codes to view a larger picture of the concept being studied
Presenting the Data	Using graphical, tabular, or text format to present the interpretation of data

Source: Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Table 3: Methodological Rigor in Qualitative Research

Element	Description
Credibility	The degree to which the data collected are accurate, for example through member checking, triangulation, and negative case analysis
Transferability	The degree to which the findings can be transferred to another group of individuals (rather than generalized to an entire population)
Dependability	The degree to which the steps of the qualitative research process are described within the manuscript and the steps are “transparent”
Confirmability	The degree to which the researcher’s experiences and mindset to the concept are integrated into the data collected and conclusions reached.

Source: Tappen, R. M. (2011). *Advanced nursing research: From theory to practice*. New York: Jones and Bartlett Publishing.

11/29/16

Appendix C

Choosing the Appropriate Statistical Test: Marge Funk, PhD, RN

Bivariate Statistical Tests

Test Name	Independent or Related	Purpose	Measurement Level	
			IV	DV
Parametric Tests				
Independent t-test	I	Test the difference between 2 independent group means	N	I/R
Paired t-test	R	Test the difference between 2 related group means	N	I/R
1-way analysis of variance (ANOVA)	I	Test the difference among the means of 3+ independent groups	N	I/R
Repeated measures ANOVA	R	Test the difference among the means of 3+ related groups or sets of scores	N	I/R
Pearson correlation	I, R	Test the existence of a relationship between 2 variables	I/R	I/R
Linear regression	--	Predict value of DV for given value of IV	I/R	I/R
Nonparametric Tests				
Mann-Whitney U-test	I	Test the difference in ranks of scores of 2 independent groups	N	O
Wilcoxon signed-rank test	R	Test the difference in ranks of scores of 2 related groups	N	O
Kruskal-Wallis test	I	Test the difference in ranks of scores of 3+ independent groups	N	O
Friedman test	R	Test the difference in ranks of scores of 3+ related groups	N	O
Chi square test	I	Test the difference in proportions in 2+ independent groups	N	N
McNemar test	R	Test the difference in proportions for 2 related groups (2x2)	N	N
Cochran's Q test	R	Test the difference in proportions for 3+ related groups	N	N
Fisher's exact test	I	Test the difference in proportions in 2 independent groups when N < 30, any expected cell frequency < 5, or cell with observed frequency of 0	N	N
Phi coefficient or odds ratio	I	Examine the magnitude of a relationship between 2 dichotomous variables	N	N
Cramer's V	I	Examine the magnitude of a relationship between 2 variables (not restricted to dichotomous)	N	N
Spearman's rho	I, R	Test the existence of relationship between 2 variables	O	O

IV, Independent variable; DV, dependent variable; I, independent; R, related; N, nominal; O, ordinal or **non-normally distributed interval/ratio**; I/R, interval/ratio.

Note: On some tests, the measurement level of the IV & DV can be switched.

Multivariate/Multivariable & Advanced Statistical Tests

1. ANOVA

a. One-way ANOVA (bivariate)

- Purpose: Test the difference among the means of ≥ 3 groups.
- Variables: IV = 1 N; DV = 1 I/R

b. Repeated measures ANOVA (bivariate)

- Purpose: 1) Repeated measures (≥ 3) of DV on same subjects over time; 2) Exposure of all subjects to all treatment conditions (≥ 3).
- Variables: IV = 1 N; DV = 1 I/R

c. Two-way ANOVA

- Purpose: Test main effect of each IV on DV and test interaction between 2 IVs.
- Variables: IV = 2 N; DV = 1 I/R

d. ANCOVA

- Purpose: Test effect of IV on DV while controlling for covariate(s).
- Variables: IV = 1 N; DV = 1 I/R; Covar = ≥ 1 I/R (sometimes N)

e. Mixed-Design ANOVA

- Purpose: Extension of repeated measures ANOVA but with ≥ 2 groups
- Variables: IV = ≥ 2 N (1 is usually time); DV = 1 I/R

f. MANOVA

- Purpose: Test the difference among the means of ≥ 2 groups for ≥ 2 DVs simultaneously.
- Variables: IV ≥ 1 N; DV ≥ 2 I/R

2. Regression

a. Simple linear regression (bivariate)

- Purpose: 1) Determine if a linear relationship exists between IV and DV; 2) Predict value of DV based on given value of IV.
- Variables: IV = 1 I/R; DV = 1 I/R

b. Multiple regression

- Purpose: 1) Test the relationship between 2+ IVs and 1 DV; 2) Determine if an IV is r/t the DV in the presence of or accounting for other factors; 3) Predict value of DV based on several IVs; 4) Determine the amount of variability in DV that is explained by IVs.
- Variables: IV >1 any level; DV = 1 I/R

c. Logistic regression

- Purpose: 1) Test the relationship between 2+ IVs and 1 DV; 2) Determine if an IV is r/t the DV in the presence of or accounting for other factors; 3) Determine predictors of a particular outcome.
- Variables: IV >1 any level; DV = 1 N (dichotomous)

3. Survival Analysis (e.g., life table or actuarial analysis; Kaplan-Meier method; log-rank test; Cox proportional hazard model)

- Purpose: Determine time to an endpoint when subjects enter study at different times and some subjects may not have reached the endpoint at end of data collection.
- Variables: N/A

4. Measurement Statistics

a. Evaluation of agreement

- Cohen's Kappa: nominal or ordinal
- Intraclass correlation coefficient: interval/ratio

b. Evaluation of consistency

- Cronbach's alpha

c. Comparison of methods

- Bland-Altman: interval/ratio measured on same scale

Steps to Determine Appropriate Test to Use

1. Identify variables (IV vs. DV – be aware of sample)
2. Measurement level of the variables (nominal, ordinal, interval/ratio)
3. # of groups being compared (for nominal variables)
4. Whether the groups are independent or related (measured in same people over time;

matched)

5. Whether the dependent variable is normally distributed (use parametric vs. nonparametric test)
6. Sample size
7. # of variables (use univariate, bivariate, or multivariate statistics)
8. If >2 variables . . .
 - a. Determine IV(s) and DV(s) and their level of measurement
 - b. Determine purpose, e.g.
 - a. Interaction
 - b. Involve repeated-measures factors & between-group factors
 - c. Prediction
 - d. Association of IV(s) with DV in presence of other factors
 - e. Amount of variability in DV explained by IVs
 - f. Time to endpoint

appropriat test handout ynhh 1-5-17

Tool revision 1-11-17