



Improving Resident Journal Club

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Learning Objectives

- + Define the goals of resident journal club.
- + Discuss ways in which resident journal club can be structured in order to optimize attendance levels, critical appraisal education, and active engagement of participants.



What is journal club?



What is [medical] journal club?

- + "...some of the self-elect of the pupils, making themselves into a kind of club, had a small room over a baker's shop near the Hospital-gate where we could sit and read the journals..." (Sir James Paget in early 1800s)
- + "...a group of individuals who meet regularly to discuss critically the clinical applicability of articles in the current medical journals." (Linzer 1987)
- + Group of people, common area of science, meet regularly, read journals articles, critically appraise, use EBM to decide if it should be applied clinically

What is journal club?

- + Historical context (Linzer 1987):
 - + First mention: Sir James Paget (memoirs 1835-54)
 - + First organized journal club: Sir William Osler (McGill 1875)
 - + Common in German medical schools and for CME (early 1900s)
 - + First article about journal club: Professor Mattingly (1966)
 - + For junior staff: "introduction to the systematic use of medical literature"
 - + For senior staff: "a convenient method of surveying the medical literature"

What is journal club?

- + Historical context:
 - + Introduction of “evidence-based medicine” (1990s)
 - + “...the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients” (Sackett 1996)

My third and fourth years of clinical rotations were both exhilarating and doubly disappointing. On one hand, I loved working with and for impoverished patients on the wards of Chicago's Cook County Hospital, but a great disappointment arose from the unsatisfying justifications I received from my seniors for their therapeutic decisions. They ranged from

1. That's how we've always done it.
2. That's how I was taught to do it.
3. That's how this month's attending physician insists we do it.
4. That's how "the Bible" (in those days, a several-years-old edition of Harrison's Textbook of Medicine) says we should do it.
5. That's how the pathologists said we should do it ("it takes about 5 weeks for fibrous tissue to form a firm scar across a myocardial infarction, so keep them at bed rest for at least 30 days").
6. That's how the "experts" say we should do it ("your patient's blood pressure of 240/120 is required to maintain their proper brain perfusion, and lowering it will cause a stroke, so leave it alone").
7. Don't talk back! Just do it!

Teaching Critical Appraisal Skills Through Journal Club

- + Hohmann E, Tetsworth K. Teaching residents: critical appraisal of the literature using a journal club format. *Postgrad Med J* 2016;92:645-648.

How are resident journal clubs generally structured?

- + In-person meetings
- + Weekly to monthly to quarterly
- + Resident presents article, facilitating an engaging and interactive presentation
- + Chairperson helps guide discussion and facilitate participation; may also offer expert opinion
- + General discussion of content and clinical application (as appropriate) follows

Journal Club Platforms

- + In-person physical meetings
 - + Powerpoint, handouts
- + Web-based
 - + Real-time discussion forums
 - + Social-media / microblogging
 - + Twitter, Facebook, LinkedIn

The advantages of journal clubs via social media platforms include:

- Immediate access to authors and editors
- Immediate appraisal and feedback for editors and authors
- The ability for discussion between authors and readers
- The opportunity to promote international discussion
- Enhanced dissemination to developing countries and remote areas
- Development of a forum to answer questions and explore practical applications
- Discussion open to people interested in the topic who are not medical professionals (adapted from Leung et al, 2013).



What are the goals of
resident journal club?



What are the goals of resident journal club?

- + Promote review of landmark and current medical literature
- + Develop critical appraisal skills
- + Discuss clinical applications using evidence-based medicine
- + Stimulate debate
- + Allow networking between colleagues
- + Learn to present an academic article
- + Spark research ideas
- + Establish career-long habits of reviewing the literature

What are the goals of resident journal club? (cont'd)

- + Meeting requirements:
 - + ACGME competency for residents (EBM proficiency)
 - + Continuing medical education for faculty

Original “historical” goals have remained largely unchanged.

Historical Goals of Journal Club:

1. To keep up with the literature
2. To impact on clinical practice
3. To teach critical reading skills

What barriers exist that prevent journal clubs from reaching these goals?



What strategies can be used to improve journal club attendance and optimize educational value?



Medical Education Journal Club: Two years' experience at King Saud University.

Khan SA¹, Soliman MM².

Journal club "success and consistency" is dependent upon:

- + Speaker
- + Audience interest
- + Proper advertisement of event
- + Regular attendance

If you're just trying to get people there...

+ Success = "High attendance and continuous existence"

Conclusions: If residency journal club success is defined as having high attendance or long, continuous existence, then success is associated with smaller residency programs, making attendance mandatory, promoting a journal club independent of faculty, providing formal teaching of critical appraisal skills, making food available, and emphasizing original research articles. Residency programs in internal medicine seeking to establish journal clubs with long, continuous existence or high attendance should focus on these attributes. (Arch Intern Med. 1995;155:1193-1197)

*Sidorov J. "How are internal medicine residency journal clubs organized, and what makes them successful?"
Arch Intern Med. 1995;155(11):1193-7.

Characteristics of “Successful” Journal Clubs

1. Held at regular intervals (e.g. monthly)
2. Held a set time convenient for members
3. Mandatory attendance (via attendance register)
4. Attending clinicians share common clinical interests
5. Nominated chairman (has research experience, is widely respected)
6. Clear purpose agreed upon by members and periodically reviewed
7. Articles selected align with agreed upon “overall aim”
8. Original papers most commonly discussed
9. Papers are read before the meeting (thus circulated beforehand)
10. Food is available at meetings

One Model of Residency Journal Clubs With Multifaceted Support.

Serghi A¹, Goebert DA, Andrade NN, Hishinuma ES, Lunsford RM, Matsuda NM.

- + Pulled all of best practices from the literature
- + Incorporated all of best practices, collectively, into their pre-existing journal club

TABLE 1
 Contrast between old and new journal club components

Dimension	Best Practice	Old Journal Club ^a	New Journal Club
Planning	Committed planning group (including faculty clinicians, faculty researchers, & resident representation)		X
	Educational resources	X	X
	Explicit goals	X	X
	Strategic curriculum development, including selection of articles (e.g., address accreditation & board certification standards, diverse topics & research methodologies & statistics)		X
	Distribution of articles well before the meeting	X	X
Pre-session faculty-resident planning		X	
Sessions	Regularly scheduled sessions with adequate time	X	X
	Mandatory attendance	X	X
	Enforced attendance via follow-ups		X
	Food (i.e., meal)	X	X
	Trained leader	X	X
	Pre-session quiz with immediate feedback on answers		X
	Use of Internet/electronic media	X	X
	Structured resident presentations with PowerPoint templates		X
	Clinical (M.D.) and research (Ph.D., Dr.P.H.) faculty expertise as participants		X
	Established critical appraisal process	X	X
Summary of findings	X	X	
Postsession	Continuing Medical Education credit	X	X
	Evaluation after each session (i.e., postsession evaluation) with reporting of the results the next session		X
	Evaluation of the entire course and improvement for the following academic year (i.e., postcourse evaluation) with reporting of the results at the beginning of the following academic year		X

^aAlthough previous models of journal clubs included individual best-practice components, no single model utilized all of the best practices collectively.

"Engagement in learning appeared to have been dramatically increased through five strategies:"

1. Meaningful incentives
2. Assigned, engaged consistently prepared faculty
3. Meaningful evaluation
4. Pre-journal club preparations (to help residents assimilate critical appraisal with time-and-task management skills)
5. Planning group that developed and improved curricula and instruction to meet the objectives of the course

How to run an effective journal club: a systematic review

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Conclusion Characteristics of successful journal clubs included regular and anticipated meetings, mandatory attendance, clear long- and short-term purpose, appropriate meeting timing and incentives, a trained journal club leader to choose papers and lead discussion, circulating papers prior to the meeting, using the internet for wider dissemination and data storage, using established critical appraisal processes and summarizing journal club findings.

- + Regular meetings
- + Mandatory attendance
- + Goals
- + Leadership
- + Dissemination of articles
- + Using critical appraisal process

A Moderated Journal Club Is More Effective than an Internet Journal Club in Teaching Critical Appraisal Skills: Results of a Multicenter Randomized Controlled Trial

Robin S McLeod, MD, FRCSC, FACS, Helen M MacRae, MD, FRCSC, FACS,
Margaret E McKenzie, RN, CCRP, J Charles Victor, MSc, Karen J Brasel, MD, MPH, FACS, on behalf of the
Evidence Based Reviews in Surgery Steering Committee*

- + Moderated > Internet
- + Leadership

Journal Club Challenge: enhancing student participation through gamification.

Carvalho-Filho MA, Santos TM, Ozahata TM, Cecilio-Fernandes D.

PMID: 29480651 DOI: [10.1111/medu.13552](https://doi.org/10.1111/medu.13552)

+ *Gamification improves student "motivation and engagement".*

My Own GME Project

- + UVA PM&R Residency Program Journal Club
- + Problem: suboptimal attendance, low satisfaction
- + Innovation:
 - + “Director of Journal Club”
 - + Critical appraisal table
- + Improvements in attendance and satisfaction measures for both residents and faculty following six-month intervention period



What is the theme here?

MOTIVATION

In Summary: Strategies for Improvement Include..

- + Regular meetings
- + Mandatory attendance
- + Multiple articles per session
- + Articles distributed prior to session
- + Emphasis on original research articles
- + Using established critical appraisal processes
- + Using a checklist
- + Structured resident presentations with powerpoint templates
- + Committed planning group
- + Strategic curriculum development (ACGME, CME)
- + Pre-session faculty-resident planning
- + Faculty experienced in EBM moderating
- + Faculty experts participating
- + Evaluations and regular changes based on feedback
- + Food
- + Gamification

How can the critical appraisal process be taught through resident journal club sessions?



Resident evaluation of a family practice residency journal club.

Heiligman RM¹.

⊕ Author information

Abstract

This study sought to identify the attitudes of family practice residents toward journal clubs and the effect that preparing a journal club session has on the resident's view of the medical literature. Residents from Valley Medical Center were prospectively assessed over a three-year period. Residents selected the improvement of critical appraisal skills as the most important journal club goal. However, they reported that their journal club experiences did not improve their opinions of the journals selected. The results are discussed in the context of recent trends in journal clubs.

⊕ *"Residents selected the improvement of critical appraisal skills as the most important journal club goal."*

Table 1. Journal Club Components for Monthly Journal Club Discussion for 16-Month Evidence-based Medicine Journal Club Curriculum

Faculty Discussion about EBM Topic (20 min)*	<p>Introduction and PICO Question</p> <p>Identifying an Article</p> <p>Levels of Evidence</p> <p>Gold Standards</p> <p>Study Validity</p> <p>Bias</p> <p>p-Values and Alpha Error</p> <p>Sensitivity, Specificity, and Predictive Value</p> <p>Number Needed to Treat</p> <p>Absolute and Relative Risk Reduction</p> <p>Meta-Analysis and the Cochrane Collaborative Review</p> <p>Clinical Decision Rules</p> <p>Odds Ratios and Confidence Intervals</p> <p>Likelihood Ratios</p> <p>Intention-to-Treat Analysis</p>
Pre-Journal Club Preparation	<p>A faculty member meets with 3 coordinating residents and selects 3 papers focused on a clinical topic prior to journal club. These residents discuss the article with the faculty member, with a focus on applying EBM principles to understanding data and conclusions presented in the clinical articles.</p>
Peer-to-Peer Journal Club Teaching	<p>During journal club, residents are broken into 1 of 3 small groups. Coordinating residents lead a discussion about each article, and faculty members participate in small group discussions as a contributor.</p>
Core Faculty Group	<p>A dedicated group of 4 faculty members was identified that attend and coordinate each of the journal club sessions.</p>

EBM = evidence-based medicine; PICO = Patient Intervention Comparison Outcome.

* Note that only 11 months were included in the first year and 5 months in the second year. One non-journal club session is planned each year for non-EBM academic discussion.

Mohr NM, et al. "An evidence-based medicine curriculum implemented in journal club improves resident performance on the Fresno test." *The Journal of Emergency Medicine*. 2015;48(2):222-9.

Critical Appraisal of Treatment Studies (Randomized Controlled Trial)

	Questions to Consider		What is ideal?	Where do I find the information?	
INTERNAL VALIDITY	a. What questions did the study ask? (PICO)	i. Patient:			
		ii. Intervention:			
		iii. Comparison:			
		iv. Outcome(s):			
	b. Are the results valid?	i. Did intervention and control groups start with the same prognosis?	1. Were patients randomized?	Centralized computer randomization is ideal. Smaller trials may use an independent person to "police" the randomization.	Methods should describe how patients were allocated to groups.
			2. Was randomization concealed?	Concealment	Methods
			3. Were patients in the study groups similar at the start of the trial (with respect to known prognostic factors)?	More similar groups (most often indicated by p values). Groups should be similar if randomization worked.	Results should have a table of "baseline characteristics"
		ii. Was prognostic balance maintained as the study progressed?	1. Were groups treated equally?	Groups should be treated the same.	Methods should describe follow-up schedule, permitted additional treatments, etc. Results should describe what actually happened.
			2. To what extent was the study blinded?	Double-blinded is ideal (both patient & investigator). If outcome is objective (eg death), then blinding is less critical. If outcome is subjective (eg symptoms, function), blinding of outcome assessor is critical.	Methods should mention if there was masking of treatments (eg placebos with same appearance or sham therapy), how the outcome was assessed, and whether the assessor was aware of the patients' treatment.
		iii. Were the groups prognostically balanced at the study's completion?	1. Was follow-up complete?	Nil drop-out rate. Sufficient power.	Results
2. Were patients analyzed in the groups to which they were randomized?			Losses to follow-up should ideally be <20%. But if few patients have outcome of interest, even small losses to follow up can bias the results. Patients should be analyzed in the groups to which they were randomized (intention-to-treat analysis).	Results should describe how many patients were randomized and how many patients were actually included in the analysis. Look for number and reason for those lost to follow up.	
3. Was the trial stopped early?				Results	
c. What are the results?		i. How large was the treatment effect?	Usually presented as dichotomous outcomes (eg yes/no).	Results may include measures such as relative risk, absolute risk reduction, relative risk reduction, number needed to treat	
	ii. How precise was the estimate of the treatment effect?	True treatment effect is unknown but can be estimated based on sample of patients in trial (point estimate). Gauge how close estimate is to the true value by looking at the confidence intervals (CI) for each estimate. If value corresponding to no effect falls outside the 95% CI, statistical significance will be $p=0.05$.	Results		
EXTERNAL VALIDITY	d. How can I apply the results to patient care?	i. Were the study patients similar to my patient?			
		ii. Were all clinically important outcomes considered?			
		iii. Are the likely treatment benefits worth the potential harm and costs?			

How can presenting residents be guided in their preparation for journal club?



10-Step Guides for the Presenting Resident

- + Schwartz - "Improving journal club presentations, or I can present that paper in under 10 minutes"
- + Bowles – "How to prepare for and present at a journal club"

Thoughts?



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