How to successfully run a journal club

Tips and step-by-step approach

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Conflict of interest

- I do not have financial conflict of interest in relation to the content of this presentation
- I have several intellectual conflict of interest
  - Evidence-based dentistry
  - Member of Cochrane and the GRADE working group
  - Teaching critical appraisal of the scientific literature for 15 years
Objectives

• Summarize the history and purpose of journal clubs
• Describe types of journal clubs and structure of a typical session
• Identify common “do's” and “don’ts” when running a journal club

History

“To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all.”

Sir William Osler
Journal clubs are…

… local, in-person [or online] meetings organized around a single medical specialty.

… an example of situated learning in the workplace whereby colleagues learn together via their social networks to grow as a “community of practice.”


Hypothetical model - How journal clubs work in residency programs

Linzer M. Impact of a medical journal club on house-staff reading habits, knowledge, and critical appraisal skills. A randomized control trial. JAMA. 1988 Nov 4;260(17):2537-41
Purpose

- **Educational** – Topic, methods, critical appraisal
- **Research** – New questions, collaborators, methods
- **Practice** – Stay current, improve practice, learn from others
- **Social** – Community building, common language, knowledge base

Types of journal clubs

- **Question-driven**
  - Pertinent to a clinical problem
  - Best available evidence disappointing
  - Ideally: High quality, high relevance

- **Article-driven**
  - Less pertinent (article finds us!)
  - Not be worth spending the time

Montori V. "How to run a journal club". Oral presentation. Knowledge and evaluation research unit (KER), Mayo Clinic
10/11/22


Center for Integrative Global Oral Health

Penn Dental Medicine University of Pennsylvania
What do we do in a journal club?

- **Are the results valid?**
  - Methodology (good from bad)

- **What are the results?**
  - Magnitude and precision of the effect or association

- **Are the results applicable?**
  - Similar to our patients?
  - Change in practice?
  - All important outcomes measured?

- **Other challenges**
  - Spinning, conflict of interest
  - Communication of findings to patients

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Roles

**Organizer (rotate?)**
- Sets invitations
- Defines location
- Finds material

**Facilitator (or chair)**
- Keeps group goals in mind
- Balance passive and active
- Keep the session on track
- Create mini groups (check)
- Manages group dynamics
- Good facilitation skills
- Runs the show
- Time keeper

**Participants (8 to 12)**
- Show up prepared (read)
- Participate in mini groups
- Be friendly and help others
- Beginner mind (listen to understand)

Montori V. "How to run a journal club". Oral presentation. Knowledge and evaluation research unit (KER), Mayo Clinic
Parking lot

What is a generalized linear model?
Is this intervention endangering equity in the health system?
Why the authors adjusted using propensity scores?
What are propensity scores on the first place!!!
I know another study completely contradicting these results...

Should/can we answer these questions now?

Read the paper in advance or in the session?

“Sending out articles before the journal club seems to have mixed results, but more negative ones than positive. In our experience, expecting people to independently read articles before a regular meeting (and bring their copy with them) is a waste of time and paper. At most, 20% read the paper. If you then leave time for the rest of the people to scan the paper, the ones who have already read it get annoyed. If you leave no time to read the study, then most people are left adrift (and are less likely to return).”

Avoid the use of primary studies over systematic reviews and guidelines

Third molar extraction and the use of antibiotic prophylaxis

Short communication

Routine antibiotic prophylaxis is not necessary during operations to remove third molars

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Abstract

The purpose of this study was to evaluate the efficacy of antibiotic prophylaxis during removal of impacted third molars. We studied 150 patients with impacted mandibular or maxillary third molars who were divided randomly into three groups. The first was given amoxicillin 2 g combined with clavulanic acid, orally daily for 5 days postoperatively; starting at the end of the operation. The second group was given the same drugs but the regimen started 5 days before the operation. The third was given no antibiotics. Pain, infection, swelling, alveolar osteitis, and interincisal mouth opening (mm) were evaluated. There were no significant differences among the groups in the incidence of these complications. We cannot recommend routine oral antibiotic prophylaxis in third molar surgery.

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Keywords: Impacted third molars; Antibiotic prophylaxis; Postoperative complication
Does Prophylactic Administration of Systemic Antibiotics Prevent Postoperative Inflammatory Complications After Third Molar Surgery?

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Purpose: To estimate and compare the frequencies of inflammatory complications after third molar (M3) surgery in subjects receiving intraoperative prophylactic antibiotics or saline placebo.

Materials and Methods: Using a placebo-controlled, double-blind, randomized clinical trial, the investigators enrolled a sample composed of subjects who required extraction of at least 1 impacted M3 and requested intravenous sedation or general anesthesia. The predictor variable was treatment group classified as active treatment (pencillin or clindamycin for penicillin-allergic subjects) or placebo (0.9% saline). Study medications were randomly assigned. Both surgery and subject were blinded to treatment assignment. The medication was administered intravenously prior to any incision. The outcome variable was postoperative inflammatory complication classified as present or absent and included alveolar osteitis (AO) or surgical site infection (SSI). Other variables were demographic, anatomic, or operative. Descriptive and bivariate statistics were computed. Statistical significance was set at \( P = 0.05 \), single-tailed test of hypothesis.

Results: The sample was composed of 118 subjects (n = 59 per study group). In the active treatment group, there were no postoperative inflammatory complications. In the placebo group, 5 subjects (8.5%) were diagnosed with SSI (\( P = 0.03 \)). No subject met the case definition for AO. All SSIs were associated with the removal of partial bony or full bony impacted mandibular M3s.

Conclusions: In the setting of third molar removal, these results suggest that the use of intravenous antibiotics administered prophylactically decrease the frequency of SSI. The authors cannot comment on the efficacy of intravenous antibiotics in comparison to other antibacterial treatment regimens, e.g., chlorhexidine mouthwash or intravenous antibiotics.

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Role of antimicrobials in third molar surgery: prospective, double blind, randomized, placebo-controlled clinical study

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SUMMARY: Aim: To test the efficacy of two dosing regimen of antimicrobial prophylaxis during the removal of impacted lower third molars. Design: Double blind, prospective, placebo-controlled trial. Setting: Teaching hospital, India. Subjects: 151 patients aged 19–36 having impacted lower third molars removed. Methods: Random allocation into three groups: placebo (n = 34), metronidazole 1 g orally, 1 hour preoperatively (n = 44), or metronidazole 400 mg orally eight hourly for 5 days postoperatively (n = 47). Patients were recalled on the sixth postoperative day for assessment of pain scores on the second and sixth days, swelling, differences in mouth opening between preoperative and the sixth postoperative day, and the state of the wound. Results: There were no significant differences in the outcome between the three groups (\( P > 0.05 \)). Conclusions: Antimicrobial prophylaxis does not seem to reduce morbidity after removal of lower third molars. © 2001 The British Association of Oral and Maxillofacial Surgeons
Efficacy of amoxicillin/clavulanic acid in preventing infectious and inflammatory complications following impacted mandibular third molar extraction.

Artegallás, Díaz, Ballestín, Santos, Santamaría, and Santamaría.

Objective: To find out whether the frequency of postoperative infectious and inflammatory complications (IC) in subjects treated with placebo (P) is greater than those treated with antibiotic (Ab) after extraction of an impacted mandibular third molar (M3). Our hypothesis is that the IC in P is greater than in Ab, with a maximum ratio difference of 0.09.

Study Design: A double-blind placebo-controlled randomized clinical trial. The sample was derived from the population of subjects attending Cruces Hospital for evaluation and extraction of an M3 under local anesthesia. Patients were treated with postoperative placebo or amoxicillin/clavulanic acid 500/125 mg 3 times a day during 4 days. The outcome variable was infectious and inflammatory complications. Sex, age, smoking, molar depth, angulation, need for sectioning, osteotomy, and operation time were recorded. Analysis was by intention to treat, risk measures, and logistic regression.

Result: In 490 subjects (259 Ab and 231 P), the frequency of IC was 1.5% in the Ab and 12.5% in the P group (OR 7.5, 95% CI 2.9-19.5, P < .001). The number needed to treat was 10 (7-16). Unadjusted relative risk was 0.15 (0.06-0.35) (P < .001). Absolute reduction risk was 0.11 (0.06-0.15). Therefore, the hypothesis cannot be rejected. Multivariate analysis shows treatment with antibiotic (OR = 6.66 (3.17-23.67); P < .001) and age (OR = 1.08 (1.00-1.18); P = .020) are the only variables to be included in the logistic regression model.

Conclusion: Amoxicillin/clavulanic acid is efficacious in reducing the incidence of IC following third molar extraction but should not be prescribed in all cases.
Antibiotics to prevent complications following tooth extractions.

**OBJECTIVES:** To determine the effect of antibiotic prophylaxis on the development of infectious complications following tooth extractions.

**SEARCH METHODS:** The following electronic databases were searched: the Cochrane Oral Health Specialized Register to 26 January 2012, the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2012, Issue 11); MEDLINE via OVID (1948 to 29 January 2012); EMBASE via OVID (1980 to 25 January 2012) and LILACs via LILACs (1980 to 25 January 2012).

**SELECTION CRITERIA:** We included randomized, double-blind, placebo-controlled trials of antibiotic prophylaxis in patients undergoing tooth extraction(s) for any indication.

**DATA COLLECTION AND ANALYSIS:** Two review authors independently assessed risk of bias for the included studies and extracted data. The review authors discussed any disagreements.

**MAIN RESULTS:** This review included 18 double-blind, placebo-controlled trials with a total of 2,968 participants. The trials were assessed at unclear risk of bias. However, some of the trials (e.g., lack of a placebo group) were of low quality and the results may be uncertain. Antibiotics do not reduce the risk of infection in patients undergoing third molar extraction(s) by approximately 7% (RR 0.93; 95% CI 0.84 to 1.04; 20 trials). However, antibiotics may reduce the risk of infection in patients undergoing extraction of impacted wisdom teeth by approximately 6% (RR 0.94; 95% CI 0.87 to 1.02; 3 trails). Antibiotics are not associated with a higher risk of infection in patients undergoing extraction of impacted wisdom teeth.

**AUTHORS’ CONCLUSIONS:** Antibiotics do not reduce the risk of infection following extraction of impacted third molars. There is also some evidence that patients who receive prophylactic antibiotics may have less pain (MD -0.87; 95% CI -1.46 to -0.29; P = 0.005). However, the quality of the evidence is low. Further high-quality trials are needed to confirm the findings.

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**Do journal clubs work?**

Impact of a Medical Journal Club on House-Staff Reading Habits, Knowledge, and Critical Appraisal Skills

A Randomized Control Trial


The journal club is an established teaching modality in many house-staff training programs. To determine if a journal club can improve house-staff reading habits, knowledge of epidemiology and bioethics, and critical appraisal skills, we randomized 44 medical interns to receive either a journal club or a control seminar series. A test instrument developed by the Delphi method was administered before and after the interventions (mean, five journal club sessions). By comparison, the journal club group exhibited improved reading habits on 60% of the control group. Knowledge scores increased more in the journal club group than in the control group, and a trend was found toward more knowledge gained as更多 sessions were attended. Ability to appreciate competing points of view was increased slightly in each group, but there was no significant difference between the groups. We conclude that a journal club is a powerful motivator of critical house-staff reading behavior and can help teach epidemiology and bioethics to physicians-in-training.
Material for journal clubs

How to Use Evidence-Based Dental Practices to Improve Your Clinical Decision Making

A practical approach to evidence-based dentistry

Example of critically appraising a systematic review:

1. How useful is the end of a study?

2. Did the review include suitable and appropriate eligibility criteria?

3. What were the research studies included and excluded?

4. Were the primary studies of high methodological quality?

5. Were the results of high methodological quality?

6. What are the results?

7. What are the overall results of the review?

8. How precise were the results?

9. Which is the most reliable or certain estimate of the effect size?

10. How can I apply the results to my patient care?

11. Were all pertinent important outcomes considered?

12. Are the benefits worth the costs and potential side effects?

Conclusion: The results of the systematic review are likely to be useful, although they are somewhat uncertain. The methodology and interventions need to be refined to ensure the reliability of the conclusions.
Material for journal clubs

~ 400 Scans!!!

Material for journal clubs

Dental X-rays linked to brain tumors: study

A new study finds a link between dental X-rays and the risk of brain tumors. Researchers analyzed data from the "Depression, Nutrient, and Stroke Study" to determine if there is a relationship between the two. The study suggests that dental X-rays may increase the risk of developing brain tumors.

Material for journal clubs

Material for journal clubs

Dr. Nancy Snyderman @nancyMD • 11 Apr 2012

Just Gervasi @justgervasi • 18 Aug 2013

Seanit (WhitaniRiles) • 23 Jan 2013

Mohammed F. Mohammed @EmergencyMedIA • 10 Apr 2012

Yale School of Med @yale • 9 Apr 2012

Ichiro Ikuta, MD, MMSc @ichiroIkuta • 10 Apr 2012

Kantor Neurology @kantorneurology • 10 Apr 2012
Formal evaluation of impact

Do short courses in evidence based medicine improve knowledge and skills? Validation of Berlin questionnaire and before and after study of courses in evidence based medicine

L. Pichler, T. Greenhalgh, V. Kind-Yeo, J.H.F. Nossumayer, B. Ranar

Abstract

Objective: To develop and evaluate an instrument for measuring knowledge and skills in evidence-based medicine and determine whether short courses in evidence-based medicine lead to meaningful changes in knowledge and skills.

Design: Development and validation of an assessment instrument and before and after study.

Setting: Various postgraduate short courses in evidence-based medicine in Germany.

Participants: The instrument was validated with experts in evidence-based medicine, postgraduate doctors, and medical students. The effects of short courses were assessed by postgraduate doctors from medical schools in Germany.

Intervention: Improvement in the courses in evidence-based medicine. All courses involved small groups.

Main outcome measures: Knowledge and skills.

Results: The questionnaire distinguished reliably between postgraduate doctors in evidence-based medicine and those with lower average scores. For doctors and medical students, the difference in the scores was 0.17 and 0.23, respectively.

Conclusion: The instrument reliably assesses knowledge and skills in evidence-based medicine. It is not suitable for courses in evidence-based medicine with a lower average score.

Feedback – Six “Ts” for evaluating journal club sessions

**Triage** Topic selection and what not to discuss

**Time** Management enough time for tasks and finishing them

**Team** Participation and facilitation skills

**Tools** Use of the board, forms, copies of the article

**Tone** Friendly, relax, too flat, safe environment

**Take home message** Arriving to a resolution of a problem

Center for Integrative Global Oral Health

Adaptation and validation of the Berlin questionnaire for competence in evidence-based dentistry for dental students: a pilot study

Lehm Brodie, Andrea Möbius, Mareen Runche, Tobias Wagner, Stefan Röttermann, Susanne Gerhardt-Schöpf

Abstract

Background: The purpose of this pilot study was to create a valid and reliable set of assessment questions for evaluating Evidence-based Dentistry (EBD) competence. For this reason, we adapted and validated for dental students the Berlin Questionnaire (BQ), which assesses Evidence-based Dentistry (EBD) abilities.

Methods: The Berlin Questionnaire was validated with medical evidence, the adapted form is used in a dentistry setting. An expert panel reviewed the adapted BQ for content validity. A cross-sectional cohort representing four training levels (BDs versus dental students, BTD-trained dental students, dentists, and BTD-EBD-trained faculty) completed the questionnaire. A total of 140 participants completed the validation set: internal reliability, item difficulty, and item discrimination were assessed. Construct validity was assessed by computing the mean total score of students to faculty and comparing proportions of students and faculty who passed each item.

Results: Among the 140 participants (28 BDs, 49 dental students, 12 dentists, and 41 EBD-trained faculty), a statistically significant (p < 0.001) difference was evident in the total score corresponding to the training level. The total score reliability and psychometric properties of items modified for disciplinary-specific content were acceptable. Construct’s alpha was 0.54.
Suggestions how to run a journal club

- Include diversity in membership, statisticians, students, faculty
- Run it periodically, ideally at the same day and time
- Include skilled leader(s) who participate in the club, rotate roles
- Keep a record of attendance (contact information)
- Ensure meetings start and end on time
- Create cohesive clinical themes with well-defined purpose
- Allow time for presenting/reading vs discussion (50/50)
- Choose your articles intentionally (Methods or clinical relevance)
- Keep a record of the material and concepts covered
- Invite guest speakers or experts (researcher)
- Have refreshments, coffee, tea, food (free food always work!)
- Collect feedback from the group on a regular basis and act on the feedback


Tips for success

- Focus on current real patient problems of interest to the group
- Bring enough copies of the article for everyone
- Bring questions, a sense of humor, and good food
- Keep handy multiple copies of quick (1 page) appraisal tools
- Keep a log of questions asked and answered, and concepts discussed
- Finish with the group’s bottom line, and any follow up actions (change in practice, blog, etc.)
- Distribute (and redistribute) the time, place, topics, and roles

In summary

- Journal clubs meet different purposes – educational, research, practice, and social
- Typical structure: Are the results valid? What are the results? Are the results applicable to my patient?
- The role of the facilitator of the sessions is essential
- Use the appropriate available tools to run and inform your journal club
- Collect feedback from the members of the club frequently