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

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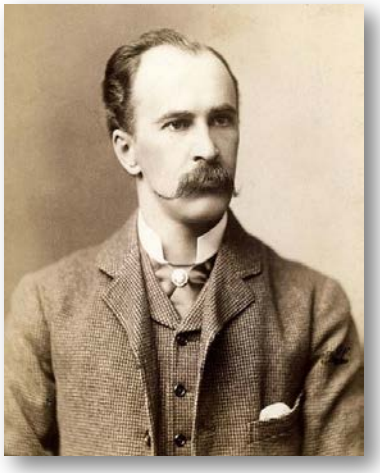
Objectives

- 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."

Ranmuthugala G, Plumb JJ, Cunningham FC, Georgiou A, Westbrook JI, Braithwaite J. How and why are communities of practice established in the healthcare sector? A systematic review of the literature. BMC Health Serv Res. 2011;11(1):273.

Hypothetical model - How journal clubs work in residency programs

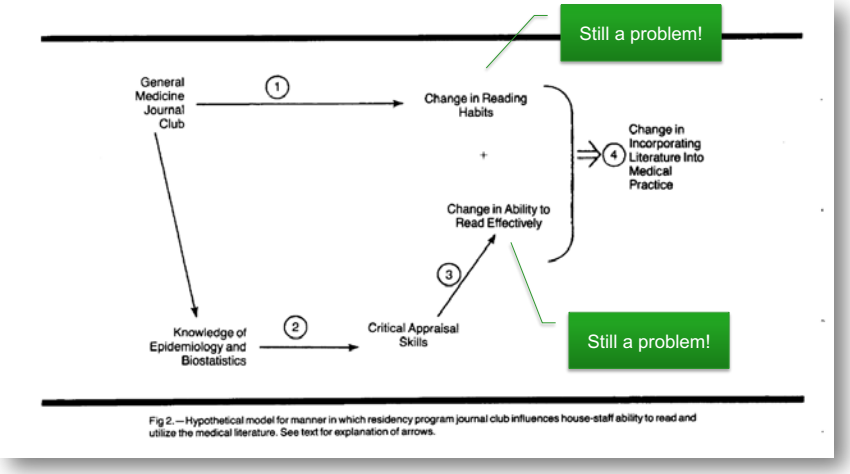


Fig 2.—Hypothetical model for manner in which residency program journal club influences house-staff ability to read and utilize the medical literature. See text for explanation of arrows.

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

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Types of journal clubs

Question-driven

Pertinent to a clinical problem

Best available evidence disappointing

Article-driven

Less pertinent (article finds us!)

Not be worth spending the time

ideally: High quality, high relevance

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

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Formats

In-person
- Relatively passive — Presentation
- Relatively active — Guided appraisal

Online
- Moderator/host
- Relatively passive — Social media/webinar

Topf JM. The Evolution of the Journal Club: From Osler to Twitter. Am J Kidney Dis. 2017 Jun;69(6):827-836

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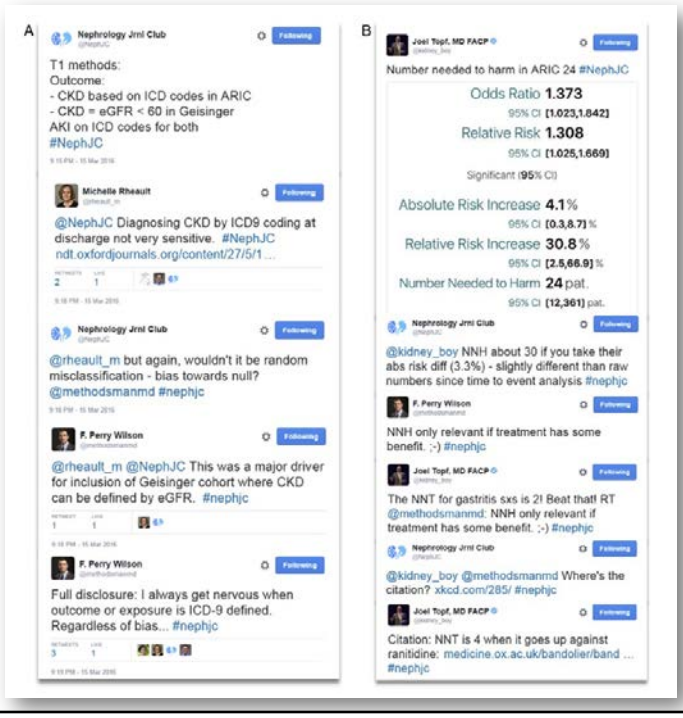
Formats

Online
- Moderator/host



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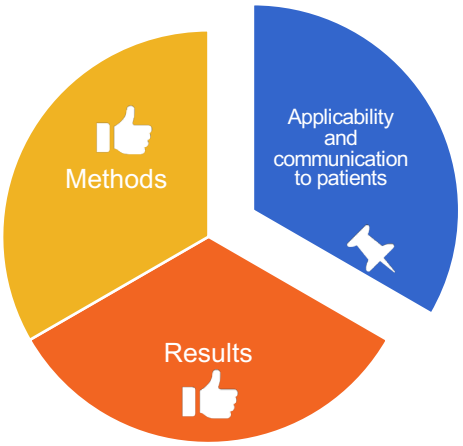
What do we do in a journal club?

- **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



Roles

Organizer (rotate?)

Sets invitations

Defines location

Finds material

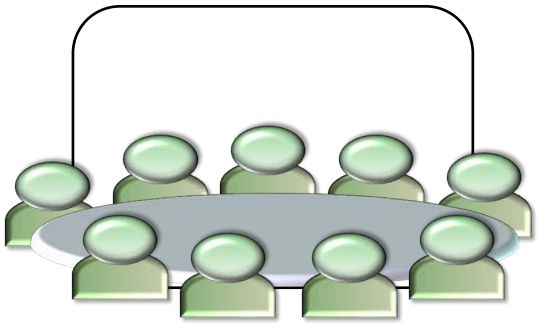
Participants (8 to 12)

Show up prepared (read)

Participate in mini groups

Be friendly and help others

Beginner mind (listen to understand)



Facilitator (or chair)

Keeps group goals in mind

Balance passive and active

Keep the session on track

Create mini groups (check)

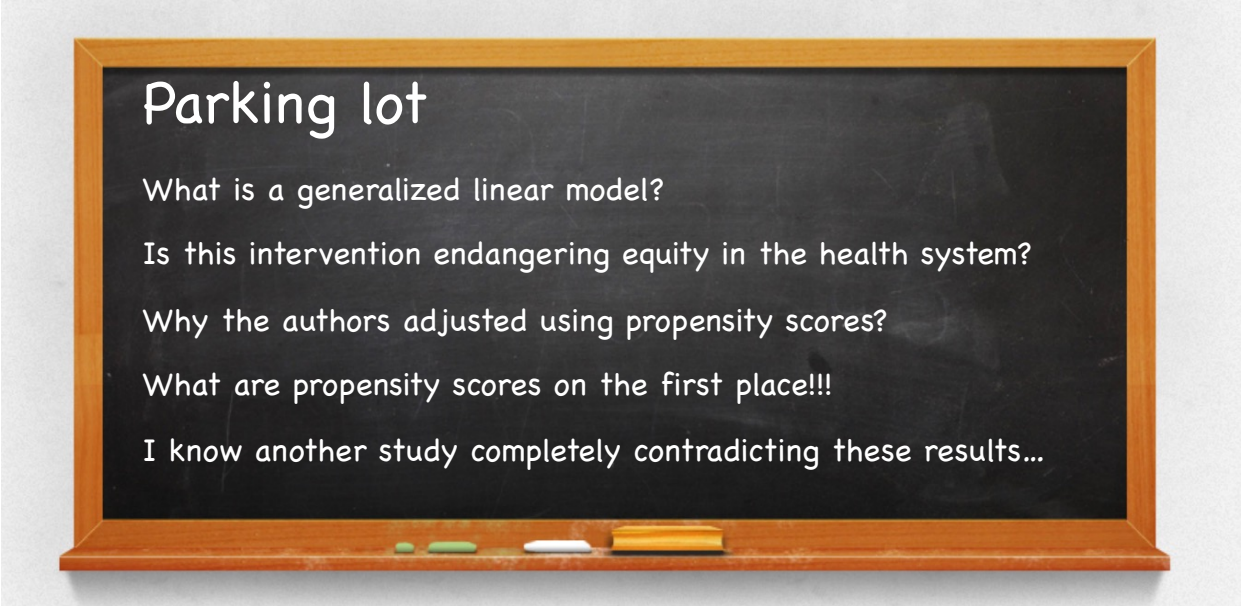
Manages group dynamics

Good facilitation skills

Runs the show

Time keeper

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



Should/can we answer these questions now?

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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)."

Phillips RS, Glasziou P. What makes evidence-based journal clubs succeed? ACP J Club. 2004 May-Jun;140(3):A11-2

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Avoid the use of primary studies over systematic reviews and guidelines

Third molar extraction and the use of antibiotic prophylaxis

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Available online at www.sciencedirect.com
ScienceDirect
British Journal of Oral and Maxillofacial Surgery 46 (2008) 133–135
ELSEVIER
BRITISH Journal of Oral and Maxillofacial Surgery
www.bjoms.com

Short communication

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

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Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Selçuk, Konya, Turkiye

Accepted 8 November 2006
Available online 22 December 2006

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

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BASIC AND PATIENT-ORIENTED RESEARCH

Does Prophylactic Administration of Systemic Antibiotics Prevent Postoperative Inflammatory Complications After Third Molar Surgery?

Leslie R. Halpern, DDS, MD, PhD, MPH, and*
Thomas B. Dodson, DMD, MPH†

Purpose: To estimate and compare the frequencies of inflammatory complications after third molar (M3) surgery in subjects receiving intravenous 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 (penicillin or clindamycin for penicillin-allergic subjects) or placebo (0.9% saline). Study medications were randomly assigned. Both surgeon 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 $P \leq .05$, 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, ($P = .03$). No subject met the case definition for AO. All SSIs were associated with the removal of partial bony or full bony impacted mandibular M3s.

Conclusion: In the setting of third molar removal, these results suggest that the use of intravenous antibiotics administered prophylactically decrease the frequency of SSIs. The authors cannot comment on the efficacy of intravenous antibiotics in comparison to other antibacterial treatment regimens, eg chlorhexidine mouthrinse or intrasocket antibiotics.

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J Oral Maxillofac Surg 65:177-185, 2007

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BRITISH Journal of Oral and Maxillofacial Surgery

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

C. H. Sekhar,* V. Narayanan,† M. F. Baig†

**Postgraduate Resident;* †*Professor and Honorary Consultant, Department of Oral and Maxillofacial Surgery, Saveetha Dental College and Hospitals, Madras, India*

SUMMARY. ***Aim*: To test the efficacy of two dosing regimens 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 ($P = 0.09$). *Conclusion*: Antimicrobial prophylaxis does not seem to reduce morbidity after removal of lower third molars. © 2001 The British Association of Oral and Maxillofacial Surgeons**

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Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2005 Jul;100(1):e11-8.

Efficacy of amoxicillin/clavulanic acid in preventing infectious and inflammatory complications following impacted mandibular third molar extraction.

Arteagoitia I[1], Diez A, Barbier L, Santamaría G, Santamaría J.

Author information

Abstract

OBJECTIVE: To find out whether the frequency of postoperative infectious and inflammatory complications (IC) in subjects treated with placebo (Pl) is greater than those treated with antibiotic (Ab) after extraction of an impacted mandibular third molar (M3). Our hypothesis is there are more IC in Pl than in Ab, with a maximum ratio difference of 0.067.

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 1 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, ostectomy, and operation time were recorded. Analysis was by intention to treat, risk measures, and logistic regression.

RESULTS: In 490 subjects (259 Ab and 231 Pl), the frequency of IC was 1.9% in the Ab and 12.9% in the Pl group (OR 7.6, 95%CI 2.9-19.9; P < .001). The number needed to treat was 10 (7-16). Unadjusted relative risk was 0.15 (0.06-0.38) (P < .001). Absolute reduction risk was 0.11(0.066-0.155)]. Therefore, the hypothesis cannot be rejected. Multivariate analysis shows treatment with antibiotic (OR = 8.66 (3.17-23.67); P < .001) and age (OR = 1.08 (1.00-1.16); P = .029) 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.

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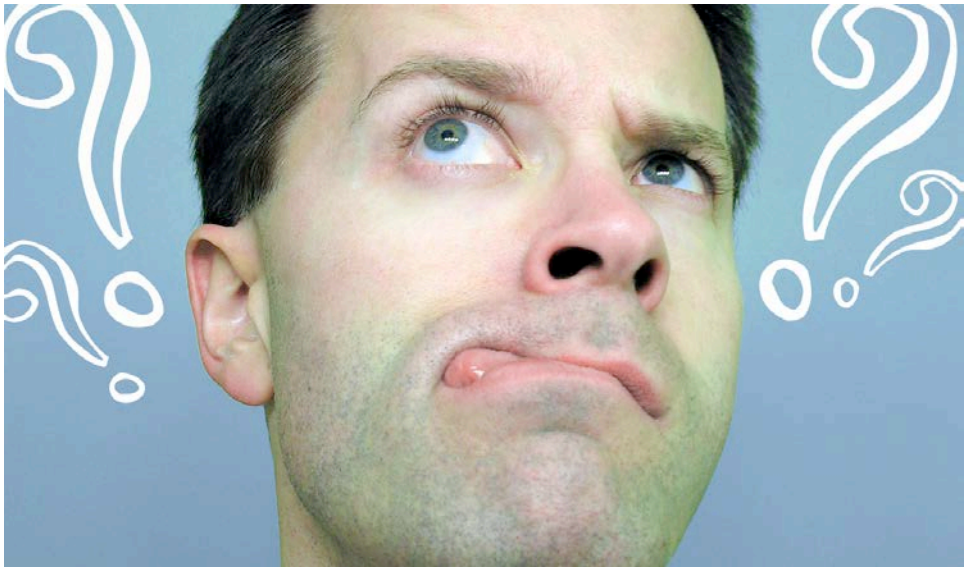

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Cochrane Database Syst Rev. 2012 Nov 14;11:CD003811. doi: 10.1002/14651858.CD003811.pub2.

Antibiotics to prevent complications following tooth extractions.

Lodi G[1], Figini L, Sardella A, Carrassi A, Del Fabbro M, Furness S.

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 Group's Trials Register (to 25 January 2012), the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2012, Issue 1), MEDLINE via OVID (1948 to 25 January 2012), EMBASE via OVID (1980 to 25 January 2012) and LILACS via BIREME (1982 to 25 January 2012). There were no restrictions regarding language or date of publication.

SELECTION CRITERIA: We included randomised 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. We contacted trial authors for further details where these were unclear. For dichotomous outcomes we calculated risk ratios (RR) and 95% confidence intervals (CI) using random-effects models. For continuous outcomes we used mean differences (MD) with 95% CI using random-effects models. We examined potential sources of heterogeneity. The quality of the body of evidence has been assessed using the GRADE tool.

MAIN RESULTS: This review included 18 double-blind placebo-controlled trials with a total of 2456 participants. Five trials were assessed at unclear risk of bias, thirteen at high risk, and none at low risk of bias. Compared to placebo, antibiotics probably reduce the risk of infection in patients undergoing **third molar** extraction(s) by approximately 70% (RR 0.29 (95% CI 0.16 to 0.50) P < 0.0001, 1523 participants, moderate quality evidence) which means that 12 people (range 10-17) need to be treated with antibiotics to prevent one infection following extraction of impacted wisdom teeth. There is evidence that antibiotics may reduce the risk of dry socket by 38% (RR 0.62 (95% CI 0.41 to 0.95) P = 0.03, 1429 participants, moderate quality evidence) which means that 38 people (range 24-250) need to take antibiotics to prevent one case of dry socket following extraction of impacted wisdom teeth. There is also some evidence that patients who have prophylactic antibiotics may have less pain (MD -8.17 (95% CI -11.90 to -4.45) P < 0.0001, 372 participants, moderate quality evidence) overall 7 days after the extraction compared to those receiving placebo, which may be a direct result of the lower risk of infection. There is no evidence of a difference between antibiotics and placebo in the outcomes of fever (RR 0.34, 95% CI 0.06 to 1.99), swelling (RR 0.92, 95% CI 0.65 to 1.30) or trismus (RR 0.84, 95% CI 0.42 to 1.71) 7 days after tooth extraction.Antibiotics are associated with an increase in generally mild and transient adverse effects compared to placebo (RR 1.98 (95% CI 1.10 to 3.59) P = 0.02) which means that for every 21 people (range 8-200) who receive antibiotics, an adverse effect is likely.

AUTHORS' CONCLUSIONS: Although general dentists perform dental extractions because of severe dental caries or periodontal infection, there were no trials identified which evaluated the role of **antibiotic prophylaxis** in this group of patients in this setting. All of the trials included in this review included healthy patients undergoing extraction of impacted **third** molars, often performed by oral surgeons. There is evidence that prophylactic antibiotics reduce the risk of infection, dry socket and pain following **third molar** extraction and result in an increase in mild and transient adverse effects. It is unclear whether the evidence in this review is generalisable to those with concomitant illnesses or immunodeficiency, or those undergoing the extraction of teeth due to severe caries or periodontitis. However, patients at a higher risk of infection are more likely to benefit from prophylactic antibiotics, because infections in this group are likely to be more frequent, associated with complications and be more difficult to treat. Due to the increasing prevalence of bacteria which are resistant to treatment by currently available antibiotics, clinicians should consider carefully whether treating 12 healthy patients with antibiotics to prevent one infection is likely to do more harm than good.

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Do journal clubs work?

Impact of a Medical Journal Clu
House-Staff Reading Habits, Knowledge, and Critical Apprais

A Randomized Control Trial

Mark Linzer, MD; J. Trig Brown, MD, MPH; Linda M. Frazier, MD; Elizabeth R. DeLong, PhD; William C. Siegel, MD, MPH

The journal club is an established teaching modality in many house-staff training programs. To determine if a journal club improves house-staff reading habits, knowledge of epidemiology and biostatistics, 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 self-report, 86% of the house staff in the journal club group improved their reading habits vs 0% in 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 more sessions were attended. Ability to appraise critically a test article 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 biostatistics to physicians-in-training.

(JAMA 1988;260:2537-2541)

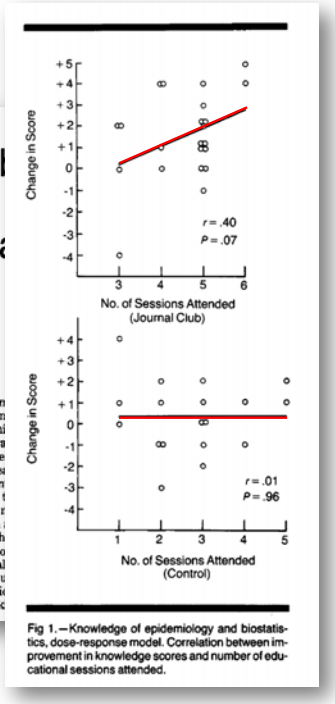

Fig 1.—Knowledge of epidemiology and biostatistics, dose-response model. Correlation between improvement in knowledge scores and number of educational sessions attended.

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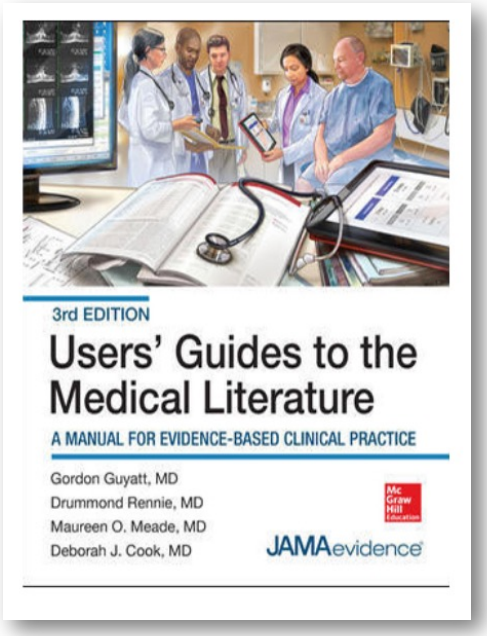
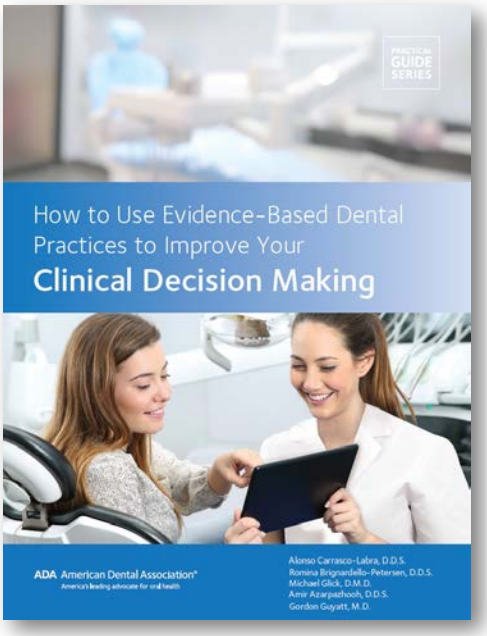
Material for journal clubs





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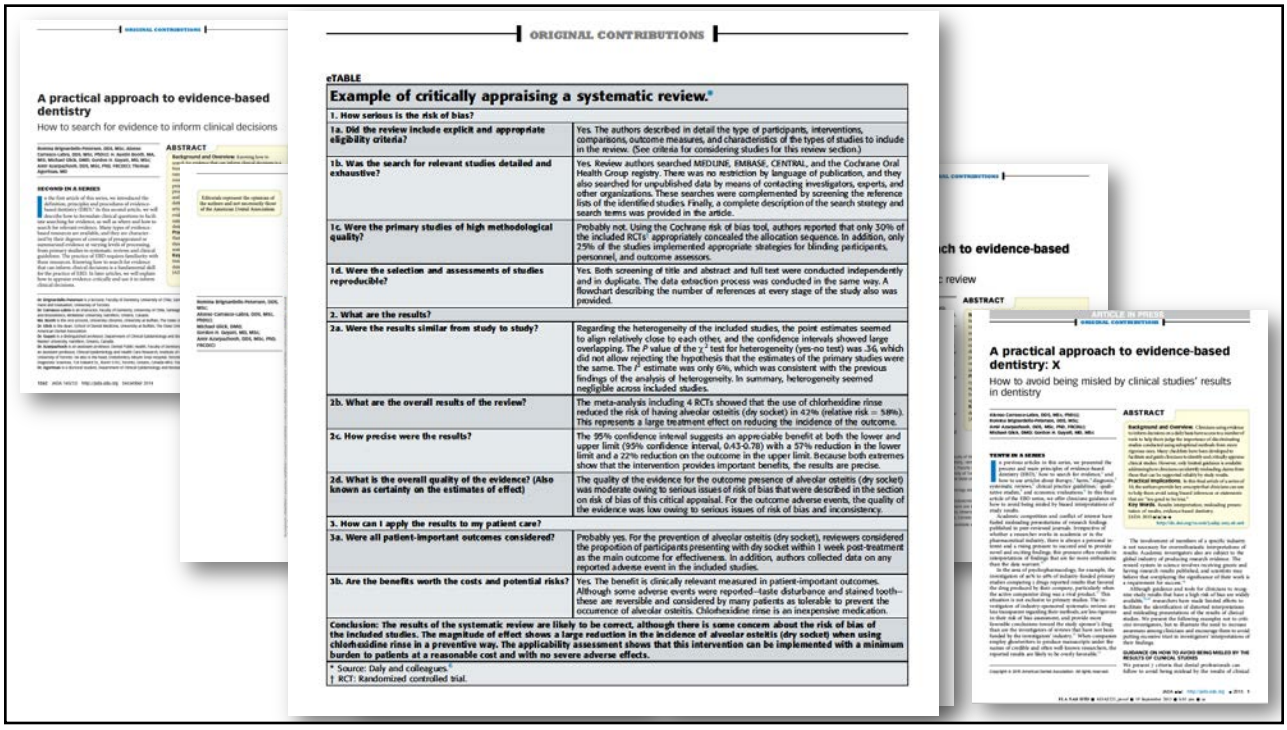

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Material for journal clubs

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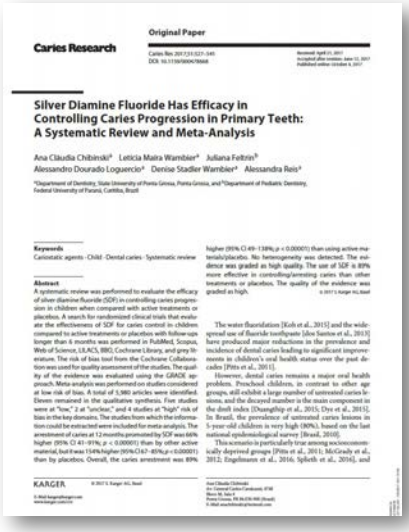
Material for journal clubs



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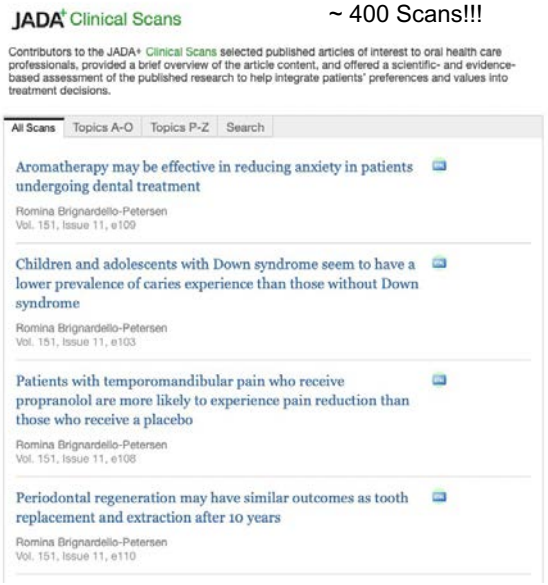

~ 400 Scans!!!

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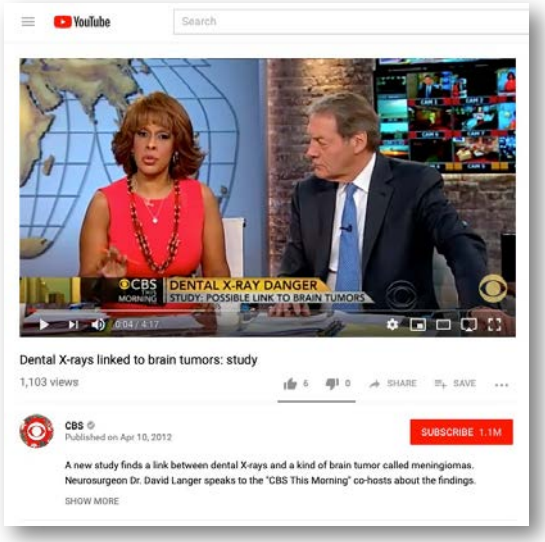
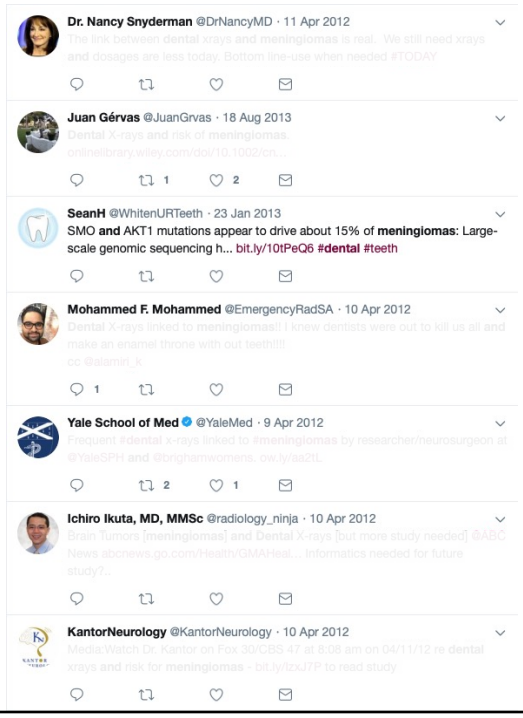
Material for journal clubs





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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 Fritsche, T Greenhalgh, Y Falck-Ytter, H-H Neumayer, R Kunz

Abstract

Objective To develop and validate an instrument for measuring knowledge and skills in evidence based medicine and to investigate whether short courses in evidence based medicine lead to a meaningful increase 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 effect of courses was assessed by postgraduate doctors from medical and surgical backgrounds.
Intervention Intensive 3 day courses in evidence based medicine delivered through tutor facilitated small groups.
Main outcome measure Increase in knowledge and skills.
Results The questionnaire distinguished reliably between groups with different expertise in evidence based medicine. Experts attained a threefold higher average score than students. Postgraduates who had not attended a course performed better than students but significantly worse than experts. Knowledge and skills in evidence based medicine increased after the course by 57% (mean score before course 6.3 (SD 2.9) *v* 9.9 (SD 2.8), $P < 0.001$). No difference was found among experts or students in absence of an intervention.
Conclusions The instrument reliably assessed knowledge and skills in evidence based medicine. An intensive 3 day course in evidence based medicine led to a significant increase in knowledge and skills.

Recent reviews focusing mainly on teaching critical appraisal have cast doubt on the effectiveness of training in evidence based medicine.[1-3] Despite the general impression that some benefit might result from such training, most studies were poorly designed and the conclusions tentative. A recently published, well designed trial showed effectiveness and durability of teaching evidence based medicine to residents, but the conclusions were weakened as the instruments used to measure knowledge and skills had not been validated.[4]

We aimed to develop and validate an instrument to assess changes in knowledge and skills of participants on a course in evidence based medicine and to investigate whether short courses in evidence based medicine lead to a significant increase in knowledge and skills.

Methods

Our study comprised three stages: development of the instrument, validation of the instrument, and before and after assessment of the effect of a short course in evidence based medicine. The instrument was developed by five experienced teachers in evidence based medicine (N Donner-Banzhoff, LF, H-W Hense, RK, and K Weyscheider).

Participants

The instrument was validated by administering it to a group of experts in evidence based medicine (tutors with formal methodological training or graduates from a training workshop for tutors in evidence based medicine) and controls (third year medical students with no previous exposure to evidence based medicine). We then administered the instrument to participants on the evidence based medicine course in Berlin (course participants) with little exposure to evi-

RESEARCH ARTICLE Open Access

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

Laura Imorde[1], Andreas Möltner[2], Maren Runschke[1], Tobias Weberschock[3,4], Stefan Rüttermann[1] and Susanne Gerhardt-Szép[1*]

Abstract

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

Methods: The Berlin Questionnaire was validated with medical residents. We adapted it for use in a dentistry setting. An expert panel reviewed the adapted BQ for content validity. A cross-sectional cohort representing four training levels (EbD-novice dental students, EbD-trained dental students, dentists, and EbM-/EbD-expert faculty) completed the questionnaire. A total of 140 participants comprised the validation set. Internal reliability, item difficulty and item discrimination were assessed. Construct validity was assessed by comparing the mean total scores of students to faculty and comparing proportions of students and faculty who passed each item.

Results: Among the 133 participants (52 EbD-novice dental students, 53 EbD-trained dental students, 12 dentists, and 16 EbM-/ EbD-expert 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 discipline-specific content were acceptable. Cronbach's alpha was 0.648.

Conclusion: The adapted Berlin Questionnaire is a reliable and valid instrument to assess competence in Evidence-based Dentistry in dental students. Future research will focus on refining the instrument further.

Keywords: Evidence-based medicine, Evidence-based dentistry, Evaluation, Dental practice, Reliability, Questionnaire, Validation

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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

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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 guess 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

Aronson JK. Journal Clubs: 2. Why and how to run them and how to publish them. BMJ Evidence-Based Medicine 2017;22:232-234.

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Tips for success

Phillips RS, Glasziou P. What makes evidence-based journal clubs succeed? ACP J Club. 2004 May-Jun;140(3):A11-2.

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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