

How to successfully run a journal club

Tips and step-by-step approach

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1

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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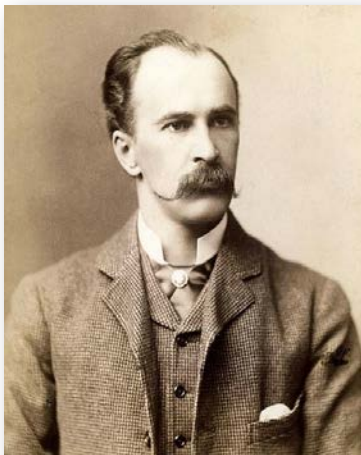


2

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.”

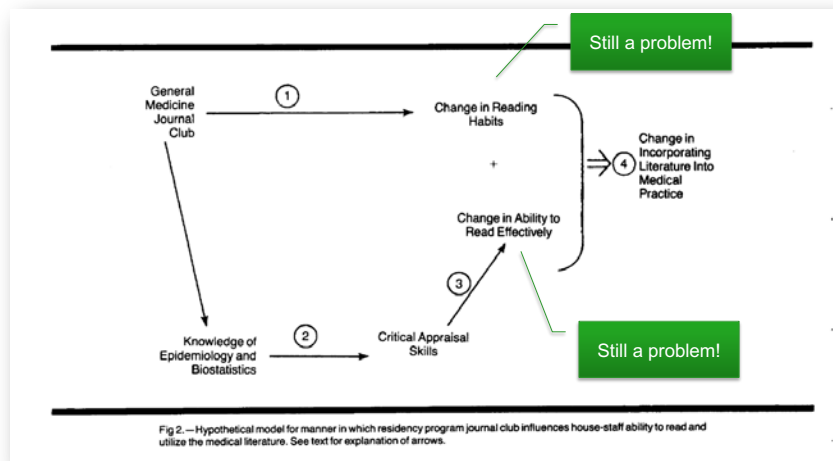
Ranmuthugala G, Plumb JJ, Cunningham FC, Georgiou A, Westbrook JJ, Braithwaite J. How and why are communities of practice established in the healthcare sector? A systematic review of the literature. BMC Health Serv Res. 2011;11(1):273.

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5

Hypothetical model - How journal clubs work in residency programs



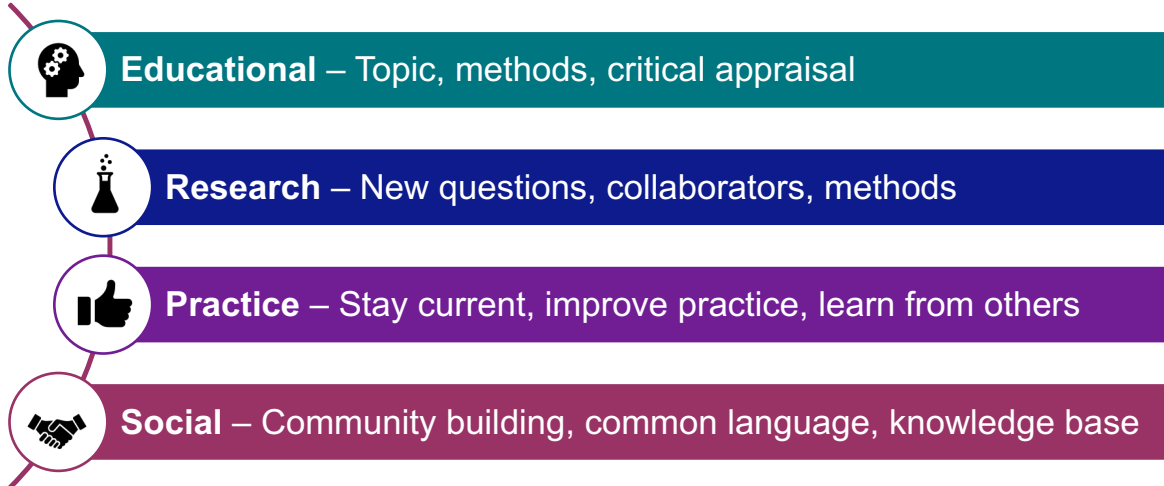
Linzer M. Impact of a medical journal club on house-staff reading habits, knowledge, and critical appraisal skills. A randomized control trial. JAMA. 1988 Nov 4;260(17):2537-41

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6

Purpose



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7

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

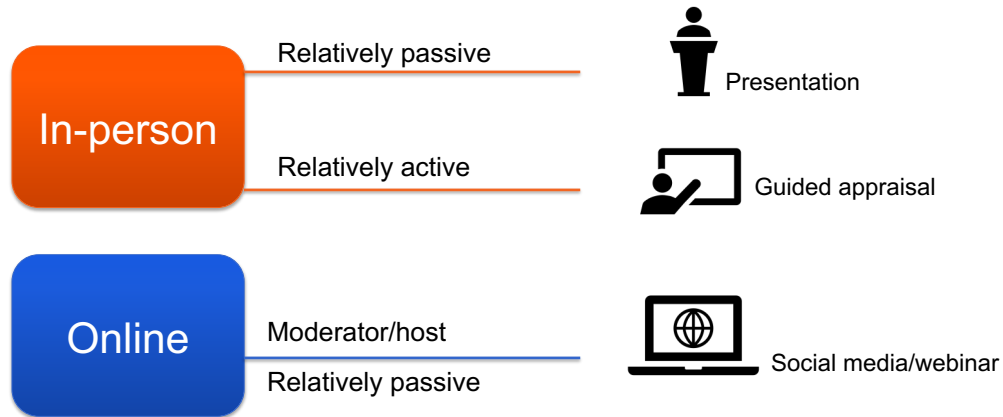
Montori V. "How to run a journal club". Oral presentation. Knowledge and evaluation research unit (KER), Mayo Clinic

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8

Formats



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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9

Formats



A Nephrology Jnl Club

T1 methods:
Outcome:
- CKD based on ICD codes in ARIC
- CKD = eGFR < 60 in Geisinger
AKI on ICD codes for both
#NephJC

Michelle Rheault
@rheault_m
@NephJC Diagnosing CKD by ICD9 coding at discharge not very sensitive. #NephJC
ndt.oxfordjournals.org/content/27/5/1...

Nephrology Jnl Club
@rheault_m but again, wouldn't it be random misclassification - bias towards null?
@methodsmamnd #nephjc

F. Perry Wilson
@methodsmamnd
@rheault_m @NephJC This was a major driver for inclusion of Geisinger cohort where CKD can be defined by eGFR. #nephjc

F. Perry Wilson
@methodsmamnd
Full disclosure: I always get nervous when outcome or exposure is ICD-9 defined. Regardless of bias... #nephjc

B Joel Topf, MD FACP
@topf_joel

Number needed to harm in ARIC 24 #NephJC

Odds Ratio **1.373**
95% CI [1.023,1.842]

Relative Risk **1.308**
95% CI [1.025,1.669]

Significant (95% CI)

Absolute Risk Increase **4.1%**
95% CI [0.3,8.7] %

Relative Risk Increase **30.8%**
95% CI [2.5,66.9] %

Number Needed to Harm **24** pat.
95% CI [12,361] pat.

Nephrology Jnl Club
@kidney_boy NNH about 30 if you take their abs risk diff (3.3%) - slightly different than raw numbers since time to event analysis #nephjc

F. Perry Wilson
@methodsmamnd
NNH only relevant if treatment has some benefit. :-) #nephjc

Joel Topf, MD FACP
@topf_joel
The NNT for gastritis sx is 21 Beat that! RT @methodsmamnd: NNH only relevant if treatment has some benefit. :-) #nephjc

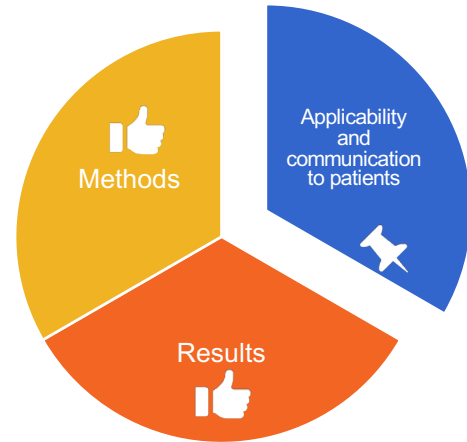
Nephrology Jnl Club
@kidney_boy @methodsmamnd Where's the citation? xkcd.com/285/ #nephjc

Joel Topf, MD FACP
@topf_joel
Citation: NNT is 4 when it goes up against ranitidine: medicine.ox.ac.uk/bandolier/band ... #nephjc

10

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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11

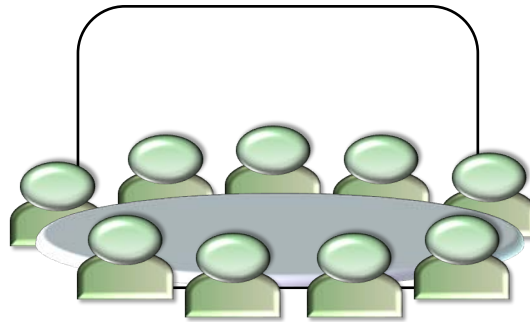
Roles

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)

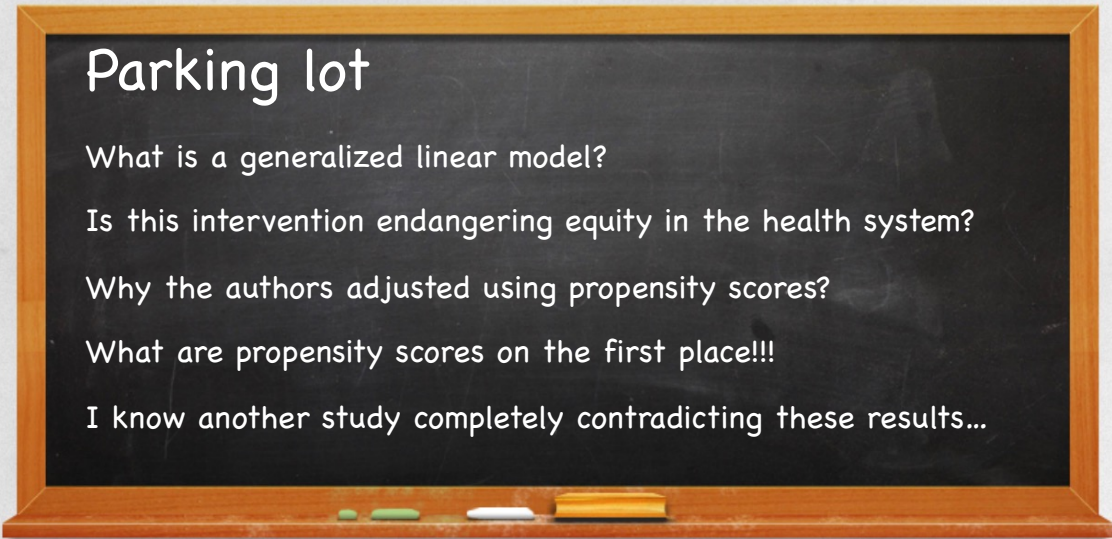
Keeps group goals in mind
Balance passive and active
Keep the session on track
Create mini groups (check)
Manages group dynamics
Good facilitation skills
Runs the show
Time keeper

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

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12



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?

13

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

14

Avoid the use of primary studies over systematic reviews
and guidelines

Third molar extraction and the use of antibiotic prophylaxis

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15



Available online at www.sciencedirect.com



British Journal of Oral and Maxillofacial Surgery 46 (2008) 133–135



BRITISH
Journal of
Oral and
Maxillofacial
Surgery
www.bjoms.com

Short communication

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



Hanife Ataoğlu*, Gülsün Yildirim Öz, Celal Çandırli, Dilek Kızıloğlu

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

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

16

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

17

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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

18

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.

Arteagaolitia I¹, Diez A, Barbier L, Santamaría G, Santamaría J.

⊕ Author information

Abstract

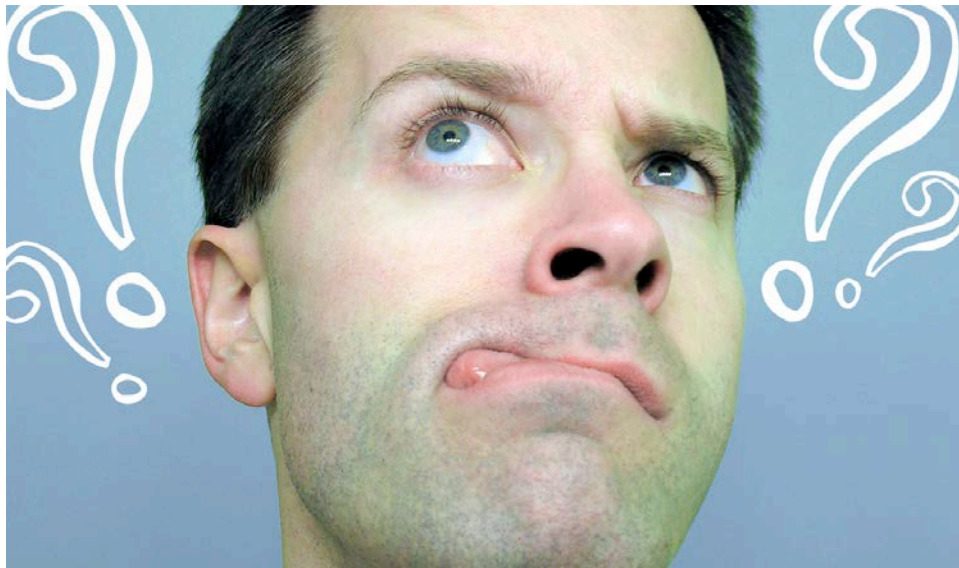
OBJECTIVE: To find out whether the frequency of postoperative infectious and inflammatory complications (IC) in subjects treated with placebo (PI) is greater than those treated with antibiotic (Ab) after extraction of an impacted mandibular third molar (M3). Our hypothesis is there are more IC in PI 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, osteotomy, and operation time were recorded. Analysis was by intention to treat, risk measures, and logistic regression.

RESULTS: In 490 subjects (259 Ab and 231 PI), the frequency of IC was 1.9% in the Ab and 12.9% in the PI 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.

19



20



Cochrane Database Syst Rev. 2012 Nov 14;11:CD003811. doi: 10.1002/14661858.CD003811.pub2

Antibiotics to prevent complications following tooth extractions.

Loel G¹, Fijn LJ, Sardella A, Carraszi 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.

21

Do journal clubs work?

Impact of a Medical Journal Club on House-Staff Reading Habits, Knowledge, and Critical Appraisal Skills: 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, 88% 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)

keeping inform clubs have been sicians-in-traini critically appra In fact, a reec critical apprais medical studen proved ability t des; however, i journal club in manner. We, th randomized, co intervention trial of a medical jou reading behavi cal appraisal sk

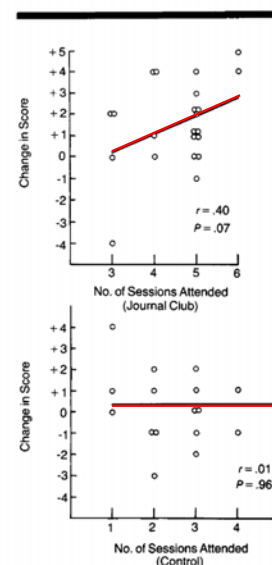


Fig 1.—Knowledge of epidemiology and biostatistics, dose-response model. Correlation between improvement in knowledge scores and number of educational sessions attended.

22

Material for journal clubs



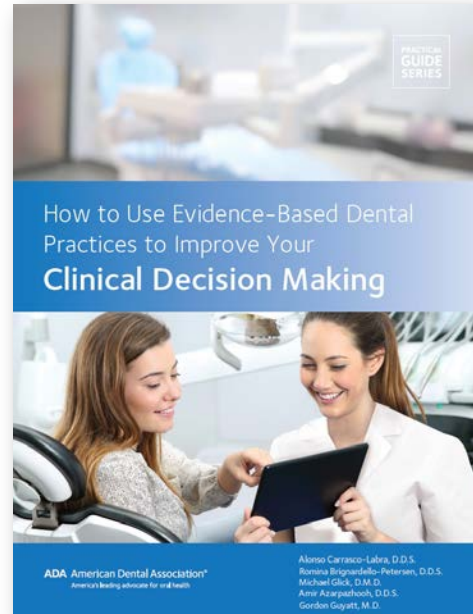
3rd EDITION

Users' Guides to the Medical Literature

A MANUAL FOR EVIDENCE-BASED CLINICAL PRACTICE

Gordon Guyatt, MD
Drummond Rennie, MD
Maureen O. Meade, MD
Deborah J. Cook, MD

McGraw Hill
JAMAevidence



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

ADA, American Dental Association®
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Alonso Carrasco-Labra, D.D.S.
Rosanna Brigandello-Petersen, D.D.S.
Michael Gluck, D.M.D.
Amir Aszarpashkoh, D.D.S.
Gordon Guyatt, M.D.

23

A practical approach to evidence-based dentistry
How to search for evidence to inform clinical decisions

ABSTRACT
Background and Objectives: Evidence-based dentistry (EBD) is a clinical approach that uses the best available evidence to inform clinical decisions. This book provides a practical approach to EBD, focusing on the search for evidence to inform clinical decisions. The book is organized into three main sections: 1. How to search for evidence to inform clinical decisions, 2. How to appraise the evidence, and 3. How to apply the evidence to patient care. The book is written for dental professionals and is intended to be used as a reference for clinical practice.

KEYWORDS
Evidence-based dentistry, clinical decision making, search for evidence, appraisal of evidence, application of evidence.

ORIGINAL CONTRIBUTIONS

TABLE
Example of critically appraising a systematic review.*

1. How serious is the risk of bias?	Yes. The authors described in detail the type of participants, interventions, comparisons, outcome measures, and characteristics of the types of studies to include in the review. (See criteria for considering studies for this review section.)
1a. Did the review include explicit and appropriate eligibility criteria?	Yes. Review authors searched MEDLINE, EMBASE, CENTRAL, and the Cochrane Oral Health Group registry. There was no restriction by language of publication, and they also searched for unpublished data by means of contacting investigators, experts, and other organizations. These searches were complemented by screening the reference lists of the identified studies. Finally, a complete description of the search strategy and search terms was provided in the article.
1b. Was the search for relevant studies detailed and exhaustive?	Probably not. Using the Cochrane risk of bias tool, authors reported that only 50% of the included RCTs appropriately consulted the allocation sequence. In addition, only 25% of the studies implemented appropriate strategies for blinding participants, personnel, and outcome assessors.
1c. Were the primary studies of high methodological quality?	Yes. Both screening of title and abstract and full text were conducted independently and in duplicate. The data extraction process was conducted in the same way. A flowchart describing the number of references at every stage of the study also was provided.
1d. Were the selection and assessments of studies reproducible?	Yes. Both screening of title and abstract and full text were conducted independently and in duplicate. The data extraction process was conducted in the same way. A flowchart describing the number of references at every stage of the study also was provided.
2. What are the results?	Regarding the heterogeneity of the included studies, the point estimates seemed to align relatively close to each other, and the confidence intervals showed large overlap. The P value of the χ^2 test for heterogeneity (yes-no test) was .34, which did not allow rejecting the hypothesis that the estimates of the primary studies were the same. The I ² estimate was only 6%, which was consistent with the previous findings of the analysis of heterogeneity. In summary, heterogeneity seemed negligible across included studies.
2a. What are the overall results of the review?	The meta-analysis including 4 RCTs showed that the use of chlorhexidine rinse reduced the risk of having alveolar osteitis (dry socket) in 42% (relative risk = .58%). This represents a large treatment effect on reducing the incidence of the outcome.
2c. How precise were the results?	The 95% confidence interval suggests an appreciable benefit at both the lower and upper limit (95% confidence interval, 0.43-0.70) with a 57% reduction in the lower limit and a 22% reduction on the outcome in the upper limit. Because both extremes show that the intervention provides important benefits, the results are precise.
2d. What is the overall quality of the evidence? (Also known as certainty on the estimates of effect)	The quality of the evidence for the outcome presence of alveolar osteitis (dry socket) was moderate owing to serious issues of risk of bias that were described in the section on risk of bias of this critical appraisal. For the outcome adverse events, the quality of the evidence was low owing to serious issues of risk of bias and inconsistency.
3. How can I apply the results to my patient care?	Probably yes. For the prevention of alveolar osteitis (dry socket), reviewers considered the proportion of patients presenting with dry socket within 1 week post-treatment as the main outcome for effectiveness. In addition, authors collected data on any reported adverse event in the included studies.
3a. Were all patient-important outcomes considered?	Yes. The benefit is clinically relevant measured in patient-important outcomes. Although some adverse events were reported—taste disturbance and stained teeth—these are reversible and considered by many patients as tolerable to prevent the occurrence of alveolar osteitis. Chlorhexidine rinse is an inexpensive medication.
3b. Are the benefits worth the costs and potential risks?	Yes. The benefit is clinically relevant measured in patient-important outcomes. Although some adverse events were reported—taste disturbance and stained teeth—these are reversible and considered by many patients as tolerable to prevent the occurrence of alveolar osteitis. Chlorhexidine rinse is an inexpensive medication.

Conclusion: The results of the systematic review are likely to be correct, although there is some concern about the risk of bias of the included studies. The magnitude of effect shows a large reduction in the incidence of alveolar osteitis (dry socket) when using chlorhexidine rinse in a preventive way. The applicability assessment shows that this intervention can be implemented with a minimum burden to patients at a reasonable cost and with no severe adverse effects.

* Source: Daily and colleagues.
† RCT: Randomized controlled trial.

ABSTRACT
Background and Objectives: Evidence-based dentistry (EBD) is a clinical approach that uses the best available evidence to inform clinical decisions. This book provides a practical approach to EBD, focusing on the search for evidence to inform clinical decisions. The book is organized into three main sections: 1. How to search for evidence to inform clinical decisions, 2. How to appraise the evidence, and 3. How to apply the evidence to patient care. The book is written for dental professionals and is intended to be used as a reference for clinical practice.

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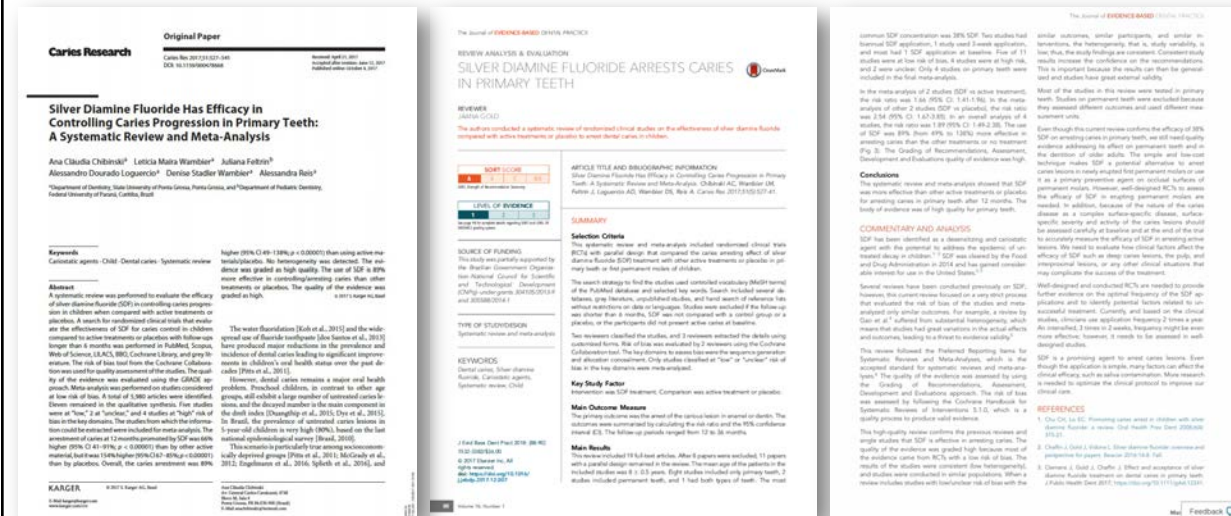
24

Material for journal clubs



25

Material for journal clubs



26

Material for journal clubs

JADA[®] Clinical Scans

~ 400 Scans!!!

Contributors to the JADA[®] Clinical Scans selected published articles of interest to oral health care professionals, provided a brief overview of the article content, and offered a scientific- and evidence-based assessment of the published research to help integrate patients' preferences and values into treatment decisions.

All Scans Topics A-O Topics P-Z Search

Aromatherapy may be effective in reducing anxiety in patients undergoing dental treatment

Romina Brignardello-Petersen
Vol. 151, Issue 11, e109

Children and adolescents with Down syndrome seem to have a lower prevalence of caries experience than those without Down syndrome

Romina Brignardello-Petersen
Vol. 151, Issue 11, e103

Patients with temporomandibular pain who receive propranolol are more likely to experience pain reduction than those who receive a placebo

Romina Brignardello-Petersen
Vol. 151, Issue 11, e108

Periodontal regeneration may have similar outcomes as tooth replacement and extraction after 10 years

Romina Brignardello-Petersen
Vol. 151, Issue 11, e110

JADA[®] Content

This review does not in any way substitute for professional advice and should not be regarded as clinical guidance. As always, any evidence should be carefully considered by clinician and patient to ensure that in their views, all potentially desirable consequences outweigh all potentially undesirable consequences.

JADA[®] Clinical Scans

Romina Brignardello-Petersen, DDS, MSc, PhD

Very serious limitations in systematic review summarizing how minimally invasive techniques compare with defective restoration replacement render it not useful for making clinical decisions

de Carvalho Martins HM, da Silva EJNL, Tavares Pereira Ferreira DM, Rodrigues Reis K, da Silva Fidalgo TK. Longevity of defective direct restorations treated by minimally invasive techniques or complete replacement in permanent teeth: a systematic review [published online ahead of print September 3, 2018]. *J Dent.* <https://doi.org/10.1016/j.jdent.2018.09.001>.

Key words: General dentistry; defective restorations; longevity; minimally invasive techniques; repair; replacement; systematic review.

Clinical relevance: Clinicians often choose minimally invasive techniques (MITs), such as sealing or repair, to manage defective restorations. The longevity of these strategies is 1 of the key outcomes that patients care about when presented with the options. Thus, clinicians should be informed about what the best available evidence on the topic is.

Study summary: The authors conducted a systematic review (SR) to compare the longevity of defective restorations managed by using MIT with that of defective restorations replaced. The authors searched 6 electronic databases and the gray literature through September 2017 for clinical trials

comparing MIT with replacement to manage defective amalgam or resin composite restorations. The authors included 10 studies in which researchers placed a total of 1,024 restorations in participants who were followed from ages 2 through 12 years. The authors did not conduct meta-analyses, but they claimed that repair, sealing, and refurbishment were more beneficial than replacement.

Strengths and limitations. This SR had very serious limitations, and, therefore, its results have limited applicability for making clinical decisions. Although we believe that the authors were able to find all of the relevant studies addressing their question, their synthesis of the information was problematic. They did not perform meta-analyses or explain their reasons for not doing so. They also did not provide a narrative synthesis of the results across studies at the outcome level. Instead, they provided detailed results for each of the outcomes within each group within each study. It is, therefore, unclear how the authors concluded superiority of 1 strategy over another, and it forces the readers to believe the authors' statements, for which there was no support provided. The evidence assessment they conducted was also done inappropriately, and it is unlikely that the high or moderate confidence the authors support their claims with is such. Therefore, this SR is not sufficient to support the superiority of MITs compared with replacement to manage defective restorations. Clinicians should bear in mind, however, that this is mainly an issue of the methods the authors used to conduct their SR and not owing to a lack of difference between the options. ■

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27

Material for journal clubs

YouTube Search

DENTAL X-RAY DANGER
STUDY: POSSIBLE LINK TO BRAIN TUMORS

Dental X-rays linked to brain tumors: study
1,103 views

CBS
Published on Apr 10, 2012

A new study finds a link between dental X-rays and a kind of brain tumor called meningiomas. Neurosurgeon Dr. David Langer speaks to the "CBS This Morning" co-hosts about the findings.

SHOW MORE

SUBSCRIBE 1.1M

Dr. Nancy Snyderman @DrNancyMD · 11 Apr 2012
The link between dental x-rays and meningiomas is real. We still need x-rays and dosages are less today. Bottom line-use when needed #TODAY

Juan Gervas @JuanGrvas · 18 Aug 2013
Dental X-rays and risk of meningiomas.
onlinelibrary.wiley.com/doi/10.1002/cs...

SeanH @WhitenURTeeth · 23 Jan 2013
SMO and AKT1 mutations appear to drive about 15% of meningiomas: Large-scale genomic sequencing h... bit.ly/10IPeQ6 #dental #teeth

Mohammed F. Mohammed @EmergencyRadSA · 10 Apr 2012
Dental X-rays linked to meningiomas!! I knew dentists were out to kill us all and make an enamel throne with our teeth!!!
cc @alamir_k

Yale School of Med @YaleMed · 9 Apr 2012
Frequent #dental x-rays linked to #meningiomas by researcher/neurosurgeon at @YaleSPH and @BrighamWomens. ow.ly/aaz2L

Ichiro Ikuta, MD, MMSc @radiology_ninja · 10 Apr 2012
Brain tumors (meningiomas) and Dental X-rays [but more study needed] @ABC News abcnews.go.com/Health/GMA/Health... Informatics needed for future study?..

KantorNeurology @KantorNeurology · 10 Apr 2012
Media Watch Dr. Kantor on Fox 30/CBS 47 at 8:08 am on 04/11/12 re dental x-rays and risk for meningiomas - bit.ly/1tXJ7P to read study

28

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, J.F. H-W. Hense, R.K. and K. Weycheider).

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 evidence based medicine. We included them in the study.

RESEARCH ARTICLE

Open Access



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

Laura Imorde¹, Andreas Mölner², Maren Runschke¹, Tobias Weberschock^{3,4}, Stefan Rüttermann¹ 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

29

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

30

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

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

32

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		

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

33

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