

Modernizing the journal club

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Traditionally journal clubs provide a forum to learn presentation skills. We propose a new approach to teaching and learning in journal clubs, focusing on literature acquisition and critical appraisal skills. This approach will enable trainees to use journal clubs for personal professional development as well as for application of new knowledge in clinical medicine to improve patients' outcomes.

INTRODUCTION

The journal club is a popular activity in postgraduate training among clinical specialties and is seen as a powerful educational tool. Therefore it is no surprise that journal club meetings have become a part and parcel of formal postgraduate medical education (Sidorov, 1995; Alguire, 1998). The earliest reference to a journal club dates back over a century (Linzer, 1987). Despite enormous strides in medical education, learning activities in journal clubs have generally remained unstructured. This reduces the potential educational value of the journal club.

The evolving changes in medical practice are largely attributed to rapid expansion in its knowledge base. New paradigms in the practice of medicine require integration of art and science, i.e. the best-published clinical evidence with individual clinical expertise (Sackett et al, 1996). Considering that over 2 million articles are published annually in the biomedical literature, for individual practitioners to keep up-to-date with the literature is an impossible task (Siegel et al, 1990; Smith, 1991).

The need to change medical curricula to equip undergraduate medical students with the capacity to acquire new knowledge, appraise it and apply

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it to changing circumstances has been well recognized (General Medical Council, 1993). To bring about familiarity with these skills at the postgraduate level, this article proposes a new format for a journal club, which departs from a traditional approach in order to enhance its educational value (Khan and Gee, 1999).

EDUCATIONAL OBJECTIVES

In medical education, recent trends are rooted in the realization that the aim of teaching is to facilitate learning. The educational programmes should aim to inculcate deep learning, in contrast to surface learning, which circles around memorizing and reproducing (and forgetting soon after examinations).

The deep learning approach helps trainees make sense out of the subject matter (Brown and Atkins, 1988; Gibbs, 1992). The approach is fostered when the process of learning not only builds on activation of existing knowledge but also construction of new knowledge over and above what is existing. This enables refinement of the information that is acquired.

The traditional journal club described below does not facilitate deep learning process. There is no prior delineation of learning objectives and there is a lack of context. In this article, we describe the teaching and learning strategy of the traditional journal club and propose some ways of modifying this strategy to make it compatible with the goal of fostering deep and lifelong learning.

JOURNAL CLUB

Traditional

Journal club can be defined as an educational meeting where a group of individuals discuss articles in the current medical journals, providing a forum for a collective effort towards keeping abreast with literature at regular intervals (Sidorov, 1995). The traditional style of running journal clubs has several disadvantages with respect to achieving these above objectives. For example, it is the trainees who select articles at random without a systematic literature search and appraise them without any guidelines for appraisal and clinical application.

In a traditional journal club there is no opportunity for developing critical thinking in the context of clinical care (Linzer, 1987). Untrained in medical research, most trainees do not appraise the methodology of the studies, which is an important omission, as a large proportion of published medical literature is known to lack methodological rigour (Haynes, 1993). The presentation is usually based on a summary of the article, emphasizing the authors' results and conclusions.

Without critical appraisal the journal club session can only be regarded as an exercise for presentation skills. The presenters are often criticized by their mentors for not selecting and/or appraising the articles appropriately. The mentors' comments are generally based on personal opinion, which is usually not methodologically supportable.

More importantly the articles chosen at random may not be relevant to current clinical practice. The motivational

context becomes absent as the journal club is not driven by the need to know something about patient care. The opportunity to build on existing concepts is lost as the trainee's existing knowledge or experience is not brought to bear in the process.

Even though the trainee is active in the process of preparation for journal club meeting, the learning activity is unplanned and does not draw on a structured critical appraisal. The level of mentor assistance in this process is variable and the trainee is often left to prepare without guidance. The presentation at the journal club itself provides an opportunity for interaction with others, but the learning environment is threatening and anxiety provoking. The junior members of the journal club who attend do not gain any scientific knowledge about literature appraisal and hardly feel enthused to take the role of a presenter in subsequent journal club sessions. Following the presentation, the article and the associated information is not reflected upon. It is quickly forgotten and seldom processed or refined for use in clinical practice.

The new format

It is possible to organize a module that is based on a guided discovery approach, which puts the learning process in the context of clinical problem solving. The authors propose that the journal club should be structured with careful selection of learning experiences in order to enhance deep learning of literature appraisal skills. There are several steps to the proposed new format (Table 1).

Identify problem: As a first step the trainees should be encouraged to identify

a current patient care problem that they consider important but do not feel certain about its best management, possibly in the light of conflicting expert opinion. They bring out issues which they feel are worth the effort of exploring the medical literature to address their uncertainty.

In the first instance these clinical problems could be discussed in a small group where they are converted into focussed answerable questions by defining the population, intervention and outcome (Rosenberg and Donald, 1995). The problem formulation process is to be led by trainees themselves, in light of the evidence that journal clubs run independent of faculties are more successful (Sidorov, 1995).

Search literature: The second step is to search the literature to identify relevant articles. Facilities for a computerized literature search of electronic bibliographic databases are provided in most postgraduate education resource centres. This process should be structured and conducted using key words representing the population, intervention and outcome of interest.

Often an evidence-based medicine search filter for therapy, diagnosis, prognosis or aetiology (Haynes et al, 1994) limits the search. The journal club members collectively decide on any articles that are potentially relevant after going through the citation list. These articles are retrieved from the base library or ordered through the interlibrary loan system.

Appraise the evidence: Having acquired the identified article(s) the trainee appraises them independently at his/her own pace. The appraisal is

based on structured guidelines as this approach is known to enhance the value of journal clubs (Burstein et al, 1996).

The structured appraisal is facilitated by use of computer software that employs few simple criteria for methodological rigour. This software is used to perform the calculations of clinically meaningful measure of effect and allows the appraisal to be stored in an electronically retrievable form (Badenoch et al, 1998).

The use of the software can be facilitated by exploring the critical appraisal package independently or by assistance of a peer trainee who is familiar with the software. With the help of a mentor any difficult methodological concepts and calculations can be clarified. This approach has been shown to be associated with improved success in journal clubs (Sidorov, 1995), as measured by high attendance and continued existence. The trainee and the mentor together refine the electronic appraisal, decide on the format of the journal club presentation and produce instructional materials.

Thus the journal club is used by the presenter as an opportunity to learn by peer tutoring, as trainees have to be able to provide an explanation to others. The mentor's role in the journal club presentation is not only to aid in the peer tutoring process but also help the presenter deal with difficult members of the audience. At the end of the presentation the presenter gets feedback and has a chance for reflection. The appraisal is finally modified in light of the discussion in the journal club meeting and a final version of the appraisal can be stored electronically in any computer network.

Store information for future use: The appraised topics can be retrieved from this electronic bank for use in clinical service areas, future teaching and ward rounds. This aspect of documentation provides an incentive for the trainee to disseminate their work to other trainers and trainees who were unable to attend the meeting. The information abstracted from the appraisal of the article in this manner can be applied to resolve patient man-

TABLE 1
Various steps involved in the new style journal club

Step 1	Clinical problems are converted into focussed answerable questions by defining the population, intervention and outcome
Step 2	Electronic literature search is conducted to identify relevant citations
Step 3	Literature appraisal is carried out using computer software that examines conformity of the evidence with simple criteria for scientific rigour
Step 4	Appraised evidence is stored electronically and made available within a computer network using Internet technology

agement problems, which reinforces the impact of problem-solving skills learnt during preparation for the journal club.

Finally, because assessment is a major determinant of learning (Swanson et al, 1995), the trainee's performance in the journal club can often be used as part of their formative assessment. The advantages are summarized in Table 2.

Impact on trainees

Following implementation of the new style journal club at the Birmingham Women's Hospital (<http://www.thenhs.com/bham-women's/cats/>), the authors assessed the impact on trainees during the first 4 months. In this feasibility study, it was apparent that there was a significant increase in their reading time and the knowledge of critical literature appraisal (Khan et al, 1999). The authors' experience is that it is practically feasible to change the journal club from the traditional approach to the new format in order to promote the practice of evidence-based medicine.

CONCLUSION

The theory of the new journal club educational approach is attractive but the implementation can pose several problems. It is important to appreciate the value of clinical expertise from the senior clinicians. By exposing the trainees and the trainers to the added value of new evidence in the light of existing experience, one can convince them that the journal club is a worthwhile exercise.

One should recognize that there are no quick and easy answers to clinical problems. Appraisal of the selected literature is a vital component of the journal club. It is generally assumed that the journal editors and reviewers would have appraised the manuscript before publication. This assumption is fraught with some difficulty, as 80–90% of published literature in leading journals does not fulfill high quality criteria for scientific validity (Haynes, 1993). Enthusiastic trainees, computer technology and senior clinicians' experience will help to make the

new format journal a success as shown by our feasibility study (Khan et al, 1999). **HM**

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TABLE 2.
Features comparing the traditional and new style journal club

	Traditional	New format
Structure	–	++
Critical appraisal	–	++
Clinical context	–	++
Problem orientated	±	++
Meaningful interaction	±	+
Learning activity	+	+
Supervision	±	+

KEY POINTS

- With the enormous expansion in the medical literature, there is a need for effective and efficient strategies to keep abreast of new knowledge.
- Journal club, an educational tool in postgraduate medical education, can be designed for acquisition and appraisal of current best clinical evidence.
- There should be a systematic approach to both acquisition and appraisal of evidence and context should be directly related to patient care.
- Incorporation of computer technology in the journal club helps with acquisition and appraisal of evidence, but more importantly it allows storage and instant retrieval of appraised topics in the future.
- Once firmly established as a regular part of postgraduate education, this new format journal club will impart additional skills to medical trainees which will help improve patient care in light of the expanding knowledge base in health care.