Could a Journal Club be an Effective Educational Tool for Radiation Therapists?

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ABSTRACT

Radiation therapy, like many other health professions is one in which knowledge and technology is continually changing. It is the responsibility of all radiation therapists to be aware of current developments and to support the integration of research results into treatment and care of their patients. Radiation therapy research however is only useful to those who read and understand the published articles. This paper identifies journal clubs as a potential educational tool for the evaluation and utilisation of professional research. The history of journal clubs is reviewed and the various journal club formats presented. Both the common goals and outcomes of journal clubs are discussed. The literature reviewed in this paper is from across the health sciences professions due to the paucity of information about this issue in radiation therapy.

INTRODUCTION

Radiation therapy, like all health professions is continually striving towards the best quality patient care at the lowest possible cost, while trying to incorporate new technology. As a result, all health care professionals must be able to demonstrate the benefits of what they do, and therefore clinical practice should be research based. Journal clubs are one method for meeting the expectation that all health professional practice is research based.¹⁻³

A journal club can be broadly defined as “a group of individuals who meet regularly to discuss critically the clinical applicability of articles in the current medical journals”¹⁻³ (p.475). A journal club therefore has the potential to provide the setting for discussions on current issues relevant to the workplace, where participants use their clinical experience to support and/or challenge the article’s content. In this way a journal club can potentially facilitate reflection through discussion for radiation therapists on their own clinical practice and how their clinical practice relates to radiation therapy research discussed in the current literature.

The purpose of this article is to briefly review the history of journal clubs and discuss the various journal club formats. The common goals of journal clubs are summarised and the outcomes of journal clubs analysed. The effectiveness of journal clubs as an educational tool for radiation therapists is evaluated.

HISTORY OF JOURNAL CLUBS

Journal clubs were first recorded as early as the period of 1835 to 1845 in which students met in a room to read journals or play cards. In the early 1900s in Germany, journal clubs were routinely found in departments of medicine and in medical schools. Traditionally journal clubs were used as a means of keeping postgraduate trainees abreast of the literature. From 1917 to 1975, journal clubs were designed into a forum for continuing medical education.³

More recently, journal clubs have been used as a vehicle to teach critical appraisal skills, research design, medical statistics, clinical decision theory and clinical epidemiology.⁴⁻⁶ Journal clubs can be found in the fields of medicine, surgery, psychiatry, nursing, pharmacy, obstetrics, gynaecology, paediatrics and geriatric social service.³

JOURNAL CLUB FORMATS

Many different journal club formats are described in the literature. Most of the journal clubs described are held monthly,²,⁶⁻¹⁴ while some are held weekly,³,⁷,¹⁵. The duration of the journal clubs vary from forty-five to ninety minutes,¹,⁸ with the most common duration one hour.²,¹¹,¹³,¹⁵ All journal clubs described are held at prearranged dates and times, during work hours or just before or after a shift. Participation in the journal clubs may be mandatory⁹ however it is usually voluntary.²,¹¹⁻¹₂

Burstein et al.⁹ recommends that one person coordinates all the journal club sessions. Many authors recommend the rotation of participants as facilitators.¹,⁹,¹¹,¹⁶ Journal articles are distributed at least one week in advance and participants are encouraged to review the article and come prepared to discuss the research at the meeting.²,⁹,¹¹⁻¹₂ Without such preparation, a participant’s involvement in the discussion will be limited. The journal article may be selected by the group during the previous journal club meeting.² however article selection is usually rotated among the participants.¹,¹¹,¹³,¹⁷ Guidance in article selection may be required to increase relevance and interest level of the participants.¹⁸

The number of articles reviewed will depend on variables such as the time available, amount of research literature on a given topic, and the depth of analysis desired. The number of articles

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reviewed ranges from review of a single article in depth, to no more than two articles, to three related articles. Four authors mentioned the use of a critical appraisal tool during the journal club. That is, participants use a guideline or worksheet to aid in the critical discussion of the journal paper. The critical appraisal tool can vary in content with the purpose of the journal club and the level of research knowledge among the participants. Nevertheless, all users of a critical appraisal tool are associated with an increase in participant satisfaction of the journal club.

In medical journal clubs, critical appraisal guidelines embrace the philosophies of evidenced based medicine particularly when it gained popularity in the mid-1980s. Evidence-based medicine is the “conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients” (p.71). In nursing and allied health, evidence-based medicine is known as evidence-based practice which similarly recommends the implementation of practices that are proven to be the most effective based on the best available evidence.

Clinical judgment of a health professional is integrated into the decision making process of whether research findings should be implemented to the care of individual patients by “weighing evidence arising in the clinical situation against appropriate contextual and domain-relevant knowledge” (p.483). These professional judgments vary with past experiences and current clinical skills. Therefore, a journal club is a forum that encourages discussions among practicing health care professionals on the relevance and usefulness of research findings to clinical practice.

The journal clubs described in the literature consisted of two to 20 participants. The journal club participants may vary in clinical experience and professional roles within the same medical specialty. In a radiation oncology department, radiation therapists (from students to managers) medical physicists, nurses, radiation oncologists and registrars could participate in the same journal club. Although they belong to the same medical specialty, they all have slightly different perspectives on patient care and treatment. The diversity of backgrounds promotes the exchange of different perspectives and more effective collaboration with other disciplines. A journal club could thus prove to be a very effective means of communication for radiation therapists with other health professionals within the department encouraging a more holistic approach to a patient’s radiation therapy treatment.

Without the diversity of backgrounds of journal club participants the exchange of ideas may be limited, however if the group is too diverse, it may be difficult to focus the discussion. Another potential problem of journal clubs is the possibility of one or more participants dominating the discussion which may lead to a reduction in the quality of the discussion. Further limitations of journal clubs include managers who do not value research or demonstrate an unwillingness to change established polices and procedures.

Therefore, journal club participation is most successful when supported by management. Based on the experiences of physiotherapy journal clubs in Australia and England, the main barriers of journal club provisions are the lack of access to journal articles and time constraints. In recognition of the importance of a journal club, departments should subscribe to relevant professional journals, encourage the use of the hospital library and establish a link with the university library. Managers can encourage participants by valuing research and education, and providing time for education during working hours. Providing time may be difficult due to the heavy clinical demands of radiation therapists but clearly an essential consideration as one of the most common reasons for discontinuing journal clubs appears to be lack of time. Management can also show support by demonstrating a willingness to change established policies and procedures based on rigorous and scientifically merited research. Journal clubs are most effective when conducted in an informal atmosphere as this encourages and promotes review and discussion. Holding the journal club around a table is better still as it maximises eye contact.

The characteristics of adult learners have been identified in educational research such as the need for self-direction, the meaning attached to learning gained from experience and their ability to assess their own learning needs. To ensure the incorporation of adult learning principles, journal clubs should also be voluntary, participant-centered and highly interactive. Journal clubs that incorporate adult learning principles will enhance the participants’ experience in a number of ways. This may include utilising their clinical experience and applying it to the article being reviewed or facilitating the opportunity for them to identify their own learning needs in relation to the article.

Interestingly, Sidorov correlated the success of their journal club with mandatory attendance, seemingly contradicting these basic adult education principles. One of the defining characteristics of adult education is “they (adult learners) are more deeply motivated to learn those things they see the need to learn” (p.47). It follows that although participants may be forced to attend there is no guarantee that they will learn, especially if they do not perceive the need to attend a journal club. Closer analysis identifies that Sidorov measured the success of their journal club by its “longevity” and “high attendance” rather than the impact of the journal club on clinical practice. It is difficult to measure the success of a journal club on attendance alone especially if the attendance is mandatory, as by definition mandatory attendance guarantees ongoing attendance. It would seem that the impact that staff attendance has on clinical practice would be a far more relevant measure of success, suggested methods of measuring this success will be discussed later in this paper.

It is therefore important to encourage active participation as opposed to passive attendance for adult learners. One strategy to achieve this is to ensure that journal club discussions are extremely relevant to the participant’s professional experience and help relate theory to practice. Journal clubs may be able to teach skills that enable lifelong learning, by providing a supportive environment for learning and encouraging radiation therapists to keep up to date with the professional literature. A study conducted by Sim et al. identified the importance of lifelong learning attributes in “the development of an individual collectively” as well as ensuring the “MRS profession can move forward” (p.16). Cross emphasises that the most important lifelong learning attributes for the adult learner are to “possess the basic skills of learning plus the motivation to pursue a variety of learning interests” (p.249). In any profession adults are required to be “thoughtful, autonomous learners rather than dependent learners” (p.251). This reinforces Sim et al. conclusions that the perceived lack of lifelong learning attributes in MRS professionals is contributing to the low participation rates in continuing professional development activities. Hence, the journal club may be utilised as an educational tool to facilitate the development of lifelong learning attributes in MRS professionals.

JOURNAL CLUB GOALS
The goals of journal clubs are somewhat program-dependent. There are however three common goals of journal clubs described in the literature. The first is to keep up to date with current research.2-3,9-14,16 Journal clubs allow participants the opportunity to develop an awareness of current professional literature and research as current topics are reviewed and discussed.

Koziol-McLain et al.16 maintains that keeping up-to-date as a group is much easier than doing so individually and therefore the responsibility is shared. One of the key characteristics of adult learners is that they have a unique set of professional experiences that make an important contribution to their learning. Essentially adult learners define themselves by what they have done.21 It seems logical then that a group of professionals sharing their experiences will only serve to enrich the learning experience of those involved. The discussion that occurs within the journal club is “more likely to encourage deep processing of information.”25(p.27) when compared to reading an article individually. It is also easier for participants to become more familiar with the more common complex terms in the articles when learning in a group.16

The second common goal of journal clubs is to make clinical practice changes based on current research and results.1-3,11-14,16 There are many ways in which reading research-based journal articles may affect practice including:

1. Drawing attention to new issues, ideas, trends and strategies
2. Explaining complex procedures and problems
3. Alerting readers to inadequacies and problems in patient treatment and care
4. Providing a theoretical basis for current practice and decision-making
5. Evaluating and justifying current practice and policies1

The third common goal of journal clubs is to improve the participants’ ability to evaluate and critically appraise the research.2-3,9-11,13-16 Critical appraisal skills are extremely important because before research findings can be recommended and implemented, participants of journal clubs must have an understanding of the research process and be able to look critically at the credibility of the research and results.2 Critical appraisal skills include the ability to assess the study design, statistics, validity, reliability and applicability of published evidence and to incorporate the results of this assessment into patient management.20 It is based on the premise that the maintenance or improvement of patient care requires health professionals to base their decisions on the best available evidence.

There are a number of additional goals of journal clubs described in the literature. Journal clubs encourage the participants to talk and share information on a professional basis.2,12,14 They can expand the participants’ perspectives of their profession.13 Participating in a journal club encourages lifelong learning because in this forum the clinical skills, professional beliefs and theoretical knowledge are consolidated. Another goal of journal clubs is to teach the participants how to firstly design and conduct research investigations, and secondly, to prepare manuscripts for publication.3,27 These goals can be achieved provided a person with the necessary skills leads the activity.

The final goal of journal clubs described in the literature is for participants to obtain continuing education credits.4 This is extremely relevant to radiation therapists as the Council of the Australian Institute of Radiography (AIR) have stated that continuing education will become mandatory for members from January 2005.28 Therefore, radiation therapists will be required to accumulate a set amount of credits as evidence of their continuing professional education, so that they are entitled to continue to practice.

There are two ways for radiation therapists to accrue CPD credits using journal club participation. The first is through self-directed learning by reading professional publications with a value of 0.5 credits per article. The second is by discussion with colleagues or experts again with a value of 0.5 credits per hour.29 If the journal club was to receive appellation from the AIR this would double the credit points received by the participant and could act as an incentive for radiation therapists participating in the CPD program to attend. It is important to note here that attendance and the learning outcomes achieved by a participant are two very different things, and it is essential that adult education principles be considered in the design and facilitation of the journal club, as well as appellation with the AIR. Again, it is important that an appropriately qualified person leads the group so that the objectives can be achieved.

MEASURING JOURNAL CLUB OUTCOMES

The literature search only produced one study on the use of journal clubs in radiation therapy. This study by Hammick27 was conducted at the Royal Marsden School of Therapeutic Radiography. In this study, undergraduate students participated in a monthly journal club during the academic term. The journal club was repeated at each clinical site when the students were on placements. No outcomes of the journal club are evaluated in this study.

An evaluation of a four-year obstetrics and gynaecology journal club found that participation helped them read the medical literature critically. The journal club experience promoted the designing of research protocols, presentation of papers to national and international research meetings and publications to peer-reviewed journals by the participants.14 In addition, participants of a nursing journal club felt enhanced self-confidence and self-esteem when they based their practice on scientific findings. The organisation benefited immensely by the professional growth of the staff and improved patient outcomes.11

The only randomised controlled trial of a journal club was conducted by Linzer et al.15 in postgraduate medical education involving 44 interns. These interns were randomly assigned to a weekly journal club or to standard conferences. The journal club met weekly for one hour, during which one article was appraised. Participants completed a pretest and posttest, separated by a mean of 9.5 months.

This trial reported a statistically significant improvement in reading habits, knowledge of clinical epidemiology and biostatistics, and the use of medical literature in clinical practice. These three findings were also supported by Bazarain et al.8 who conducted a cohort study of 32 medicine residents. Neither trial demonstrated that participation in the journal club improved critical appraisal skills. However, a study by Bennett et al.26 showed that medical students could learn critical appraisal skills in a tutorial setting and apply them effectively in an artificial clinical situation.

Following the results of their study, Linzer et al.15 suggested that participation in the journal club for a longer period of time may eventually transfer the necessary knowledge required for critical appraisal skill development. Alternately, they believed
that critical appraisal skills should be taught with “minicourses” preceding participation in a journal club. Since then, a number of authors have identified that formal teaching of critical appraisal skills is essential to the success of journal clubs.1,5,22

As mentioned earlier a number of authors have advocated checklists or reading guides as tools for teaching critical appraisal skills.9,15,26 The use of a reading checklist (structured review instrument) has been evaluated by Burstein et al.9 in an emergency medicine training program. The structured review instrument was associated with higher overall satisfaction of the journal club format, however the improvement of critical appraisal skills was not evaluated.

Stern et al.30 developed an assessment instrument that may be used to objectively assess whether improvement in critical appraisal skills has occurred. However, sample size, response rate, a single type of article reviewed, and the involvement of only one residency program limited this research. Therefore, although the study has content validity further research of this assessment instrument is required in other settings.

A journal club that incorporates the principles of evidence-based medicine encourages routine application of research evidence into clinical practice.8,15 None of the journal club studies investigated the impact of journal club to the improvement of clinical practice that in turn makes it difficult to assess whether journal clubs can achieve this outcome. This may be attributed to the fact that measuring the effect of evidence-based medicine to clinical practice without the influence of clinical or professional judgement is difficult. Nevertheless, the goal of a radiation therapy journal club is to assist with the continual improvement of radiation therapy practice.

The impact of a journal club on the clinical practice of radiation therapists can be measured by recording the number of radiation therapists seeking evidence using the literature and using critical appraisal skills as part of routine clinical practice. The number of radiation therapists designing and implementing research studies and the engagement of radiation therapists in higher degrees can also be recorded.

In a rapidly advancing technology it is imperative that there is continuous quality improvement and research of current radiation therapy practice. However, these impacts can only be observed if there is a continuous voluntary long-term practice in journal club participation and only after further investigations of the following. Firstly, further research is required in the use of checklists or reading guides as tools for teaching critical appraisal skills. Further objective studies are needed to determine whether participation in journal clubs can lead to an improvement in critical appraisal skills. Secondly, future research should focus on specific journal club formats that may be more effective in teaching critical appraisal of professional literature. Incorporation of these critical appraisal skills in practice is also required.

CONCLUSION

Journal clubs help participants keep up to date with current relevant research. Discussion of this research encourages the incorporation of new knowledge into practice. Journal clubs may also improve the participants’ critical appraisal skills. For these reasons a journal club could be a powerful educational tool for radiation therapists. With careful planning, the implementation of journal clubs in radiation therapy departments have the potential to facilitate more rigorous research based clinical practice within the radiation therapy profession.

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