

Use of the Internet as a teaching medium: the Irish orthopaedic experience

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Abstract We have developed an online Orthopaedic Discussion group in Ireland to complement weekly lectures and to encourage active learning. It has proven itself to be an excellent method of teaching and provides a platform for the discussion of complex cases and journal article appraisal. Time constraints during the working week have lessened the hours available for lecture attendance by the orthopaedic trainees. Rather than abandon didactic lectures, the Consultants and orthopaedic trainees saw the need to develop a complementary teaching technique and felt that computers and the Internet provided the ideal solution. The discussion group involves the presentation of clinical scenarios in a question and answer format, thus encouraging problem-based learning. Trainees have the opportunity to research topics and formulate answers at a time convenient to them. All involved in the discussion group have their e-mail addresses on a list-serve allowing correspondence to reach trainees. The discussion group provides a method by which trainees across the country can involve themselves in a nationwide teaching programme focused on case presentation and optimum time management.

Keywords Discussion group · Internet · e-Learning · Orthopaedic · Online

Utilisation de l'Internet comme média d'enseignement: l'expérience orthopédique irlandaise

Résumé Les auteurs ont développé un groupe de discussion orthopédique en ligne en Irlande pour compléter des conférences hebdomadaires et pour encourager la formation continue. Ce moyen de communication s'est avéré être une excellente méthode d'enseignement et fournit une plate-forme pour la discussion pour des cas complexes et la rédaction de publications. Les contraintes de travail durant la semaine ont diminué le nombre d'heures disponibles des internes d'orthopédie pour assister aux conférences. Plutôt que d'abandonner les conférences didactiques, les enseignants et les internes d'orthopédie ont vu la nécessité de développer une technique d'enseignement complémentaire et ont estimé que les ordinateurs et l'Internet constituaient la solution idéale. Le groupe de discussion implique la présentation des cas cliniques dans un cadre de questions et de réponses encourageant de ce fait l'étude du problème posé. Les internes ont la possibilité de rechercher des thèmes et de formuler des réponses au moment qui leur convient. Tous ceux qui sont impliqués dans le groupe de discussion ont leurs adresses électroniques sur un serveur permettant de communiquer avec les internes. Le groupe de discussion fournit une méthode par laquelle les internes à travers le pays peuvent s'impliquer dans un programme d'enseignement national concentré sur la présentation de cas et sur une gestion de temps optimale.

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Introduction

The development of an Online Orthopaedic discussion group in Ireland has revolutionized the education and training of orthopaedic trainees throughout the country. It complements an already well-organized network of teaching between hospitals including a weekly lecture in the National Orthopaedic Hospital Cappagh, monthly clinico-pathological cases, half-day teaching sessions in each hospital and several journal clubs. The orthopaedic discussion group was the brainchild of a number of consultants and trainees who believed that a platform for case discussion would benefit all trainees around the country. The discussion group provides a system whereby knowledge can be evaluated and shared across a profession.

The development of e-learning

Medical knowledge and the skills essential for competent practice are dynamically changing: both basic science and clinical therapy develop on a daily basis. With increasing amounts of information becoming available, the medical profession is under pressure to learn and do more in less time [4]. In the current hospital environments, despite efforts to decrease working hours of NCHDs, there is very little free time to engage in research and attend lectures outside the working environment. Increasing workloads made it more difficult for consultants and non-consultant hospital doctors to devote time to education and training and necessitated the development of an alternate teaching medium [6].

For most of the twentieth century medical education centred around didactic lectures, seminars and workshops, all supplemented by clinical bedside teaching. This form of teaching was effective but did little to encourage life long learning. It subsequently led to the development of education through the case method approach and the concept of problem-based learning [1].

Information technology has allowed the period between education and application of high quality health care to be shortened. The improved capacity of computers, their ability to deal with medical imaging in the last few years and the large amount of information available in the electronic environment has finally made them useful in the medical field as a medium for

teaching [2]. The electronic revolution has reached a point where it is changing the means of communication, the foundations of teaching methods and curricula [5]. Web based learning, Internet based training, advanced distributed learning and web based instruction online learning are synonymous with e-learning. e-Learning has become an efficient tool in the provision of education in the medical community [3].

These developments were seen as an excellent opportunity to enable a link to be formed between all orthopaedic trainees in hospitals around the country. There was now an opportunity for an online discussion group accessible to all orthopaedic trainees and consultants across the country.

The Irish Orthopaedic discussion group

This group includes Orthopaedic consultants from a number of hospitals countrywide, orthopaedic specialist registrars at home and abroad, non-specialist registrars and orthopaedic senior house officers. Each member of the group is placed on a listserv and receives all correspondence between members of the discussion group. The number of people involved in the Orthopaedic discussion group is limited by the number of trainees and the consultants involved. The addition of names to the discussion group is controlled by the Central Orthopaedic training office in Ireland and there is a database there of all the people on the listserv.

Case presentation

Each case on the discussion group is presented as a clinical vignette with a minimum of information being given at the onset. This then allows the debate to develop with additional information and radiological imaging is provided as the case develops. Each case on the discussion group is presented in a way that will stimulate and encourage the participants to explore the literature for answers and develop their clinical acumen. The online discussion group is similar in some ways to an online tutorial but it has a cognitive structure and thus contributes to the development of skills in clinical problem solving. There is a free exchange of ideas between group members and learning issues are quickly identified to help resolve any complexities of the topic under discussion.

The discussion group allows for the exposure of individuals in training to both commonly encountered and more unusual cases in the fields of elective and

trauma orthopaedics. Many of the cases placed on the discussion group are those seen in the tertiary referral centres and this provides all trainees with the opportunity to see rare and complex cases.

Irish registrars who are completing fellowships abroad are members of the discussion group and continue active participation by introducing members in Ireland to some of the complex cases treated in their specialist units. The online discussion group provides an opportunity for trainees to see paediatric cases when on an adult orthopaedic rotation and vice versa. It is an excellent method of helping trainees to keep in touch with all of the subspecialities during their various rotations.

Problem-based learning

The teaching method employed on the Orthopaedic discussion group is focused on problem-based learning. Problem-based learning was developed and introduced into the medical curriculum in McMaster University Canada approximately 30 years ago [7]. With problem-based learning, the problem given to the students serves as the context and stimulus for learning. The need to work a problem through results in a teaching process that is learner centred. Using the technique of problem-based learning online is a method by which computers and the Internet can become useful tools in the encouragement of active learning and improve the quality of the educational experience among students [8].

Problem-based learning delivered via the Orthopaedic discussion group potentially overcomes the disadvantages of a similar teaching technique in a classroom setting. Problem-based learning via the discussion group is flexible allowing trainees to work at a space and time most suitable for them. Trainees can search for information from a variety of sources, including the recent literature, to enable an effective case discussion to proceed.

A key feature of problem-based learning is that the tutor is the facilitator and not the source of information and this is very true of the Orthopaedic discussion group [8]. Our senior consultants guide the discussion of each case and offer invaluable advice regarding the complexities and management. They encourage all grades of trainee to become involved. The cases or problems being discussed are from all aspects of the orthopaedic speciality and can stimulate broad thinking or be extremely complex encouraging a detailed analysis. In keeping with the aims of problem-based

learning, the discussion group aims to stimulate a discussion and explore different opinions and ideas, not provide a single right answer [7]. The questions are designed to stimulate an inquisitive mind and encourage clinical problem solving. All information on the discussion group is carefully critiqued and reviewed by various consultants.

Alternative uses for the discussion group: journal club development

The discussion group has also become the platform from which a number of journal club meetings are launched. The articles for review are now placed online for members to download and read before each journal club meeting. This has the added advantage of ensuring that all trainees in the discussion group receive the articles in good time before the meeting, allowing careful review and adequate critical assessment.

The development of the online Orthopaedic discussion group offers many advantages to orthopaedic trainees. With busy schedules and long working days, the discussion group allows trainees to log on at a time suitable for them. As a result, they can still be involved in and contribute to the online debate. An advantage of the discussion group is that it allows time for exploration of the literature when formulating answers to the questions posed about each case.

The discussion group encourages individuals who might be intimidated by the situation in the lecture theatre to solve clinical case questions in a non-pressure situation. The online discussion group has the advantage of encouraging people who are less vocal at didactic teaching sessions to express opinions and become involved in management decisions. This has an important effect on improving confidence levels and helping people overcome shyness that can occur in the public arena.

Orthopaedic trainees at all stages of training have the opportunity to log on to the discussion group. Questions are targeted at trainees with different levels of experience and every effort is made to involve individuals who are starting out on the training scheme as well as exam candidates. Trainees have the advantage of learning from the clinical experience and knowledge of their peers and consultants.

It has been argued that pure Internet teaching involves no direct personal interaction between teachers and students and that without face to face contact it begs the question whether or not effective learning and

teaching can take place. However, the online discussion group is complementary to all the other teachings taking place around the country. There is still a large focus on clinical teaching with direct patient involvement.

Summary

The online discussion group is an excellent complement to the more traditional teaching methods employed during medical education. The construction of an online discussion group has allowed for the development of a national network for orthopaedic teaching and learning. All the trainees participating in the discussion group benefit from being able to place cases online for debate and from the experience and knowledge of fellow trainees and consultants.

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