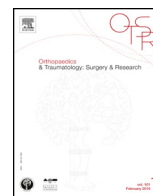




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Original article

Design and implementation of the 2012 Canadian shoulder course for senior orthopedic residents



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ABSTRACT

Background: The objective of the present paper is to analyze the first edition of a comprehensive shoulder course for senior orthopedic surgery residents and the chosen evaluation tools.

Hypothesis: A course focusing on shoulder surgery, requested by graduating residents in orthopedic surgery, will have a strong level of satisfaction and help improve skills, knowledge, and problem solving abilities in this domain as measured by a pre and post-test.

Material and methods: A two-day course was created with practical sessions, lectures, and case studies. Participants were given a multiple choice pre and post course test and evaluation questionnaires after each session.

Results: Sixty residents attended the course. Nine of the fifteen sessions scored above the 90% satisfaction cut-off; none of the sessions scored below 80%. However, only one question showed a statistically significant improvement after the course.

Discussion: Response to this course was overwhelmingly positive and the sessions received positive evaluations. However, the method to evaluate residents was not adequate; residents reported learning on their freeform evaluations but this was not represented on the multiple choice evaluation method. Evaluation tools and course duration will be modified in future iterations to improve assessment and teaching.

Level of evidence: IV.

Study design: Observational.

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1. Introduction

In Canada, as in other countries, a need was perceived by both shoulder specialists and trainees, for a comprehensive Canadian shoulder course. An American survey showed that residents felt they should have more sports medicine training, which includes the upper extremity, and also reported that sports medicine was the least organized and effective subspecialty with regard to teaching [1]. In particular, arthroscopy (a major component of shoulder surgery) is a technique that has a long learning curve, and can be

difficult to teach [2]. Further opportunities for teaching material outside of the operating room are needed [3], and courses in combination with rotations focusing on particular subject matter have been shown to improve test scores [4,5]. Moreover, some studies have shown the benefit of surgical simulation on improving performance in the operating room [6–8]. Therefore, members of Canadian Shoulder and Elbow Society (CSES) designed and implemented the 2012 Montreal Shoulder Course.

CSES² was established in 1999 and is made up of orthopedic shoulder surgeons, epidemiologists, research coordinators, nurses, physiotherapists and kinesiologists who have a common interest

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² Formerly known as Joints Canada (Joint orthopedics initiative for national trials of the shoulder).

in furthering research in the field [9]. Amongst their objectives is to improve quality of life for patients with shoulder problems; thus they have a vested interest in ensuring graduating residents in orthopedic surgery have adequate knowledge, skills and problem solving abilities in this domain.

The goal was to design a course that would touch upon a multitude of topics in shoulder surgery and answer the need expressed by residents to prepare for the practical part of their upcoming examination. To ensure maximum retention and integration of knowledge, a variety of teaching methods were used. Over a two-day course, attendees were exposed to video presentations, small group sessions, cadaveric arthroscopic and arthroplasty procedures, and didactic lectures. Recent studies have shown that skills training is an essential part of resident training which is why the course was focused on practical knowledge [10–13]. Only senior orthopedic residents and upper extremity fellows were invited to attend which allowed us to work out many of the details for the first iteration of the course offered by CSES.

This included developing the content for the course, creating and implementing course evaluations as well as pre- and post-course tests. The hypothesis was that a course focused on the needs voiced by residents would achieve a high level of satisfaction, and that a quantifiable improvement would be visible using the pre and post-test format. The results of this process are presented, along with modifications to the course format, content, and evaluation.

2. Material and methods

2.1. Defining a need

The members of CSES perceived a need for a course focused on the shoulder geared toward senior residents. In order to determine whether the target audience agreed with this assessment, and would be receptive to such a course, a survey was designed and sent to orthopedic surgery residents across Canada. This survey also asked about the perceived importance of various shoulder related topics taken from the examination requirements of the Royal College of Surgeons [14].

2.2. Course objectives

The general objective for this course was to improve resident surgical skills training and comfort level with regard to shoulder pathologies to facilitate diagnosis, treatment decision and surgical treatment.

2.3. Specific objectives

- Use and interpret validated tests in physical exam of the shoulder. (A)
- Identify important shoulder anatomical structures in radiological imaging. (B)
- Improve their capacity to give a precise diagnosis and to choose an up-to-date treatment for: Shoulder fracture (C), Shoulder instability (D), Cuff pathologies (E), Arthritic pathologies – Arthroplasty (F), Pediatric pathologies (G), Other cause of shoulder pain (biceps, SLAP, AC osteoarthritis, capsulitis) (H)
- Improve surgical skills/comfort on: arthroscopic treatment and evaluation of the shoulder, Arthroscopic Bankart and cuff repair, Shoulder fracture

2.4. Design

This course was designed for senior orthopedic surgery residents, as it was felt that they would be able to integrate this

knowledge to prepare for their upcoming Royal College examination and independent practice.

With regard to format, in order to maximize knowledge integration, the course was designed to incorporate small group sessions, video presentations, cadaveric lab sessions, and didactic lectures. These were organized in such a fashion as to be complimentary to each other. Namely, a topic would be covered in a didactic lecture, surgical principles demonstrated in a video, clinical cases were discussed during the small group sessions and the surgical technique was practiced in the lab.

The topics and the depth of coverage of each topic were defined in the following way. To begin, the Royal College of Physicians and Surgeons of Canada objectives for graduating orthopedic surgeons was consulted to determine the expected knowledge base for a graduating surgeon [14]. The committee then reviewed these objectives, and identified key concepts that would form the basis of the course. Finally, the responses to the survey administered to residents across the country were analyzed to determine what they felt was important, and where they felt their weaknesses were. The course curriculum was refined in an iterative fashion to prioritize higher yield topics and to fit into the course timeframe.

The course faculty was chosen to include leaders in the field of shoulder research, as well as community practitioners to encompass a broad range of practice patterns and experiences.

2.5. Course evaluation

From the beginning, it was deemed important to evaluate the course in a meaningful way in order to document participant satisfaction but also to improve the course for future years.

The course was evaluated in two major ways. First, participants were asked to take a pre- and post-test to assess knowledge acquisition. Questions for these tests were taken from ICLE Instructional course lectures [15]. The pre-tests were sent out, via e-mail, one month prior to the course and consisted of twenty-six questions (Table 1). A period of one month was chosen to allow ample time to complete the quiz but also to have enough time delay between the pre- and post-test to avoid recall bias. The post-test consisted of the same questions, was administered online, and participants had one week from the end of the course to provide their answers. A one-week time period from the end of the course was chosen so that any improvement in scores would be attributed to the course and not to clinical exposure. A passing grade of 75% was expected – thus, it was expected that participants would score at least 75% and that each question would have a 75% correct response rate.

Second, course participants were asked to provide feedback after each session. They were asked to provide feedback on both the structure (four questions) and the content of the individual session (four questions), and on the entire course itself. The questionnaires were based on those used at the annual CORF (Canadian Orthopedic Resident Forum) course. The questions were graded on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) (Fig. 1). The participants were also given the opportunity to provide free-form comments on the course, both during the course with the questionnaires as well as at the time of the post-test. The numerical scores were converted to a percentage score for ease of comparison. A cut-off of 90% satisfaction was chosen a priori as an acceptable score for any particular session.

In order to ensure a maximal response rate to both the pre- and post-tests, and the evaluations, participants received complete refund of the course fee only if they completed all the forms.

2.6. Funding

The course was fully financed by industry collaboration. All major companies providing either products or services relevant to

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