E-Learning Resources for Vascular Surgeons: A Needs Analysis Study

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OBJECTIVES: To obtain the views of vascular surgeons about online resources in their specialty as a guide to future e-learning development.

DESIGN: A focused questionnaire regarding e-learning resources in vascular surgery was circulated online. A combination of structured and open-ended questions addressed users' ranking of various resource types, examples of presently used websites, suggestions for future growth, and the opportunity to become actively involved in e-learning development. The responses were collected over a 4-week period and remained anonymous.

SETTING: The study was conducted online at http://www.vasculareducation.com as part of an ongoing project on e-learning for vascular surgeons by the Department of Educational Development and Research, Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, The Netherlands.

PARTICIPANTS: The survey population consisted of vascular surgeons and surgical trainees in Europe. The participants were contacted via their membership of the European Society for Vascular Surgery and national academic or administrative vascular surgical organizations. Demographic information was collected about clinical seniority and country of work.

RESULTS: In all, 252 responses were obtained. Respondents favored the development of a variety of online resources in vascular surgery. The strongest demand was for illustrations and videos of surgical techniques, followed by an interactive calendar and peer-reviewed multiple-choice questions. Overall, 46% of respondents wished to contribute actively toward e-learning development, with consultants being more willing than trainees to do so.

CONCLUSIONS: Members of the vascular surgical community value online resources in their specialty, especially for procedural techniques. Vascular surgeons would like to be actively involved in subsequent development of e-learning resources. (J Surg 69:477-482. © 2012 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: e-learning, web-based learning, online resources, vascular surgery, surgical education

COMPETENCIES: Medical Knowledge, Professionalism, Practice Based Learning and Improvement

INTRODUCTION

The provision of e-learning, as well as studies evaluating its outcome, are both increasing exponentially in medical disciplines.[1] The European Society for Vascular Surgery (ESVS) began the development of a stand-alone educational web site for the specialty in 2008 (http://www.vasculareducation.com). An understanding of the types of web resources valued by the target group is important to guide online development and to maximize user compliance. Accordingly, a needs analysis study was designed and conducted to evaluate the preferences of vascular surgeons and trainees for different methods of e-learning and to obtain feedback toward subsequent growth of the website.

MATERIALS AND METHODS

Questionnaire Design

The information to be elicited from respondents was listed through detailed discussions among the investigators. The following items were targeted:

- What kind of online resources do vascular surgeons want to be provided online? Choices included both academic (multiple-choice questions and technical illustrations) and interactive elements (blogs and forums).
- How do vascular surgeons rank various online learning options in terms of importance?
- Which vascular surgical websites, if any, do respondents currently use?
- To what extent would respondents like to participate in the development of vascular surgical e-learning?

Published guidelines for best practice in the design and use of questionnaires were followed.[2] The following principles were applied:

- Short, unambiguous questions were framed which targeted the data required. Most questions were of the closed answer format; for these, clear answer choices were provided which correlated well with the questions.
- Open-ended questions were provided for respondents to offer feedback and suggestions for future development.
- Relevant demographic data were sought, relating to clinical seniority and primary country of work. Seniority was classified into four groups based on the number of years of experience in vascular surgery; these categories are described in detail in the results. A user-friendly online survey tool (Survey Monkey™) was populated with the selected questions.

The complete questionnaire can be reviewed and attempted online at http://www.vasculareducation.com/needsanalysis_2010.

Ethical Approval

This research was conducted as part of an ongoing project on e-learning for vascular surgeons at the Department of Educational Development and Research, Faculty of Health, Medicine and Life Sciences, Maastricht University. Ethical approval for this study was obtained from the Netherlands Association for Medical Education (NVMO-ERB no. 17 issued on November 15, 2010).

Pilot Study

The questionnaire was hosted online, and 9 vascular surgeons and trainees were requested to answer the survey. The pilot run concluded with 4 additional feedback questions, as follows:

1. Were the questions easy to understand?
2. Were the answer choices appropriate for the questions?
3. Did we forget to ask for any important information?
4. Do you have any comments or suggestions?

The responses to the pilot study were overwhelmingly positive; all respondents answered "yes" to the first 2 questions. There were 2 "yes" replies to question 3, which the respondents explained as follows:

(1) "to ask for interest in an 'online meeting place' with or without job opportunities"

(2) "I think it would be good to get an idea of what kind of courses and information vascular surgeons and trainees want. This would help in setting distance courses"

The option "Online forum for discussion" was added to the choice of resources after the suggestions. Having deliberated on the other suggestions offered, we were satisfied that the questionnaire targeted the proposed needs analysis. No other changes were made in the interests of brevity.

Implementation

The study was hosted online at http://www.vasculareducation.com. The pool of respondents consisted of members of the ESVS, members of the Rouleaux club (the United Kingdom association of trainees in vascular surgery and interventional radiology), and all European trainees in vascular surgery. A short e-mail was drafted to all potential respondents, requesting feedback to guide the subsequent development of online resources for the specialty. Initially, all available European national trainee representatives were contacted, who were requested to pass the message along to their colleagues. ESVS and Rouleaux club members were then e-mailed by the secretaries of those organizations. The study was open to respondents from December 1 to 31, 2010. A reminder e-mail was sent to all Rouleaux Club and ESVS members 7 and 10 days, respectively, after the first invitation.

Analysis

Survey data were collected using a customized web interface. Results at 50 and 100 responses were compared summarily. The pattern of response remained consistent between these snapshots. It came to light that the ESVS has some non-European members, who could not indicate their country of work using the options provided for demographic data. This was remedied by adding the option "non-European country" during the first week of the study. No other logistical problems were encountered. The study was closed on January 1, 2011, and the responses were tabulated. Data were imported into IBM SPSS Version 19 for Mac (SPSS, Inc, Chicago, Illinois) for statistical analysis.

RESULTS

Respondents from 43 countries returned 252 questionnaires. Almost a quarter of the responses were from Belgium and Spain; Greece, the United Kingdom, Denmark, and Germany made up another quarter. Eight replies were from non-European countries, 4 of which were from Egypt.

Illustrations of surgical technique scored the highest overall rating and web-conferencing the lowest (Fig. 1). The 4 highest ranked e-learning choices (surgical technique illustrations, sur-