**An Online Educational Facility for Medical Oncology Trainees: www.vmotg.org**

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**Purpose:** To design, implement, and evaluate a comprehensive educational Web site for medical oncology trainees.

**Methods:** The Web site was designed with three main areas (termed Journal Club, Key Papers, and Oncology Links) and compiled from articles presented at the Victorian Medical Oncology Trainees’ Group journal club from the preceding 3 years. The Key Papers section was then reviewed by 30 academic medical oncologists. The site was advertised by mail and at the Annual Meeting of the Medical Oncology Group of Australia. Evaluation was by mail survey.

**Results:** The Web site, which may be accessed at www.vmotg.org, comprises more than 170 pages and 30,000 words of text. Journal club sessions are summarized with presented articles linked to abstracts from PubMed. Key Papers lists from five to 25 pivotal articles in each of 35 categories. Oncology Links is an extensive list of links in 10 categories including organizations, journals, and practice guidelines. Twenty-six of 45 trainees and 82 of 190 oncologists responded to the survey. Eighty-one percent of these trainees and 28% of oncologists have used the Web site. Ninety-six percent consider the site good to excellent in terms of relevance and 94% considered the site beneficial to their education.

**Conclusion:** The Web site www.vmotg.org is a relevant and useful educational resource for Australian medical oncology trainees and oncologists. As far as the authors are aware, this is the only educational site specifically for medical oncology trainees throughout the world. It may be a valuable oncology education resource for trainees in other countries, particularly those in isolated areas.

greatest potential value: Key Papers, Journal Club, and Oncology Links. Initial Web site material was compiled from the Victorian Medical Oncology Trainee’s Group (VMOTG) journal club sessions from the preceding 3 years. VMOTG coordinates a journal club program of approximately 25 to 30 sessions per year. Each session focuses on a specific issue in clinical oncology. A trainee presents the material and an attending oncologist with appropriate expertise acts as a discussant. Generally, articles discussed at the journal club are those recommended by the attending oncologist.

Articles presented at the journal club sessions were compiled and linked to abstracts available from PubMed in the major section Key Papers. Later, 30 academic medical oncologists were asked to review areas of this section relevant to their subspecialties and make recommendations regarding articles that should be added or removed. Sections within Key Papers were also linked to relevant Web sites and Internet resources.

The section Oncology Links was compiled from links considered to be of value to medical oncology practitioners, with areas including organizations, conferences, journals, and practice guidelines. Further links were added based on recommendations of trainees and oncologists.

Presentations from journal club sessions since 1999 are summarized and referenced in the third section of the Web site, which is termed Journal Club.

The Web site was advertised by mail to members of the Medical Oncology Group of Australia and presented at the annual meeting of this group in August 1999.

Evaluation

Evaluation of the site was conducted by mail survey of all Australian medical oncologists and trainees in September 1999. This was coordinated by the Medical Oncology Group of Australia. The survey could be returned by fax or by mail, though a postage-paid envelope was not provided for a reply. A reminder notice was sent to nonresponding trainees in October 1999. The survey asked respondents to indicate whether they had accessed the Web site and if not to indicate reasons from a list comprising: “no Internet access,” “didn’t know about it,” “unlikely to be useful,” and “hadn’t had the time.” Those who had logged onto the site were asked to indicate whether they considered it to be a useful medical oncology resource, and to rate it in terms of several parameters including overall look, ease of use, relevance, and usefulness using a five-point scale from excellent to poor. Further questions had respondents specifically rate the usefulness of the three major existing sections of the site and also gave respondents the opportunity to suggest new areas, including self-assessments and an online protocol manual. Adequate space was provided for qualitative comments.

The Web hosting company collected statistics regarding number of visits to the site.

RESULTS

The VMOTG Web site, accessible at www.vmotg.org, was launched in June 1999. As of May 2000, the site comprised more than 170 pages and 30,000 words of text (Fig 1). Key Papers lists five to 25 pivotal articles in each of 35 categories. Each cited article is linked to the abstract available from PubMed. When available, each topic is also linked to the National Cancer Institute’s treatment recommendations and to relevant areas of the American Society of Clinical Oncology Web site. This section has been updated in response to the suggestions of academic medical oncologists who are asked, in an ongoing process, to review areas relevant to their expertise.

Oncology Links provides links to 55 sites related to medical oncology under 10 subheadings, including organizations, conferences, journals, evidence-based medicine, training, and practice guidelines.

Journal club sessions since 1999 are summarized and are accessible from chronologic or alphabetic listings. All referenced articles throughout the site are linked to abstracts from PubMed.

A bulletin board is available for notices and discussion.

Evaluation

Twenty-six of 45 trainees and 82 of 190 oncologists had responded to the mail survey by mid-November 1999. Eighty-one percent of these trainees and 28% of oncologists had visited the Web site. All trainees who had not visited indicated that they “had not had the time.” Oncologists who had not visited the site almost exclusively either “were not aware of the site” or “had not had the time.” Ninety-six percent of those who had used the site considered it to be easy to use and “a useful oncology resource.” All trainees rated the site good to excellent in terms of relevance and 94% considered the site would be useful to their education (Fig 2). More than 94% of trainees considered the three main sections of the site to be at least “of some use” (Fig 3). Oncologists rated the site similarly to trainees regarding usefulness and ease of use, but indicated that the site would be less relevant and useful to them personally compared to trainees. Oncologists considered the most valuable sections to be Key Papers and Oncology Links.

Several respondents “anticipated using other sites less” and suggested that the site was “suitably comprehensive” and provided “fast access to relevant sites.” Many oncologists felt that the site was a valuable resource for trainees and indicated that they would recommend the site to trainees.

For the month of September 2000, the site recorded more than 600 separate visits. Around 50% of all unique user sessions were resolved to geographic locations. From this group, 50% of visitors to the site between July and September 2000 were from the United States, 23% were from Australia, and another 19% (combined) were from Japan, Hong Kong, the United Kingdom, Malaysia, and Germany.

DISCUSSION

There is much oncology-related information on the Internet and many Web sites for patients. The National Cancer
Institute’s CancerNet site\textsuperscript{7} is an excellent, comprehensive, and credible general resource; there are several other extensive and comprehensive oncology websites.\textsuperscript{9-13} However, unlike www.vmotg.org, these sites are not designed specifically to address the educational needs of oncology trainees. The American Society of Clinical Oncology Web site\textsuperscript{8} does include a career resource center and a list of classic oncology references. A Web search using the terms “education” and “oncology” revealed no other such Web sites. A PubMed search using the medical subject headings “education,” “Internet,” and “medical oncology” suggested only one other site designed to assist postgraduate education of physicians preparing for examinations in their medical specialty.\textsuperscript{14}
The response rate for the evaluation survey (58% of trainees and 43% of oncologists) was disappointing but typical. Therefore, the results can not be assumed to represent the views of all medical oncology trainees or oncologists in Australia. Those who did respond rated the Web site highly.

Several authors have recognized the use of Web-based resources for training. Publications in a variety of different health fields (such as respiratory medicine, surgery, radiology, and nursing) describe the use of the Internet as an educational resource. Interestingly, Mehta et al reported that 75% of medical students consider Web-based education to be an important additional educational resource. Moura et al also noted a favorable response by medical students toward Web-based learning.

The Internet has particular application for distance-based education. The Web site www.vmotg.org is likely to be a relevant and useful resource for oncologists in training in other countries and especially useful for those training in geographically isolated areas. The reported Web site statistics suggest that this site is currently being accessed worldwide.

The Web site will be evaluated, updated, and reviewed regularly by trainees and their teachers. Self-assessment modules and a resource area for PalmPilot (Palm, Inc., Santa Clara, CA) users are planned.

The Internet offers a huge range of information. Trainees need quick and ready access to pertinent material. Even more importantly, they need to develop and enhance skills in finding, appraising, interpreting, and applying high-quality information to support their clinical decision making.

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REFERENCES