

# Continuing medical education should be offered by both e-mail and regular mail: a survey of Ontario anesthesiologists

*[La formation médicale continue doit être offerte par le courriel et la poste régulière : une enquête auprès des anesthésiologistes de l'Ontario]*

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**Purpose:** In response to the Royal College of Physicians and Surgeons of Canada Maintenance of Certification Program (MainCert), a research project was designed to determine the modality by which practicing anesthesiologists in Ontario would like to undertake their continuing education courses. We wished to explore whether interest in electronic delivery correlates with gender, age, location of practice, appointment to teaching hospitals or number of years in practice.

**Methods:** Following University of Toronto Ethics approval, a survey questionnaire was sent to 875 anesthesiologists practicing in Ontario. Included with the questionnaire was an offer of a free module to be delivered by e-mail, regular mail or fax that could, upon completion, generate MainCert credits.

**Results:** Of the 875 questionnaires mailed, 413 (47%) were returned. A total of 404 responses, 113 from female (30%) and 291 from male (70%) anesthesiologists, were entered in the database. Three hundred and thirty three respondents requested the module and of these 51% preferred delivery by regular mail, 40% by e-mail and 3% by fax. Chi squared tests showed no significant differences between gender, among age groups, location of practice nor affiliation with university/teaching hospitals. When asked to rate their level of comfort with the Internet on a ten-point scale (1 = low, 10 = high), 59% of respondents indicated a level of 8 or higher. Of those who preferred regular mail, 40% indicated that they were also comfortable with electronic communication.

**Conclusion:** It was concluded that both e-mail and regular mail options should be offered to facilitate continuing medical education.

**Objectif:** Afin de répondre au programme de maintien du certificat (MainCert) du Collège royal des médecins et chirurgiens du Canada, un projet de recherche a été conçu pour déterminer le mode par lequel les anesthésiologistes en exercice de l'Ontario préféreraient poursuivre leurs cours de formation continue. Nous voulions savoir si l'intérêt pour la livraison électronique était en corrélation avec le sexe, l'âge, le lieu de pratique, la nomination à un hôpital universitaire ou le nombre d'années d'exercice.

**Méthode :** Ayant reçu l'approbation du Comité d'éthique de l'University of Toronto, un questionnaire a été posté à 875 anesthésiologistes en exercice de l'Ontario. Était joint au questionnaire une offre de module disponible par courriel, poste régulière ou télécopie qui pouvait, à terme, générer des crédits MainCert.

**Résultats :** Des 875 questionnaires postés, 413 (47 %) ont été retournés. Un total de 404 réponses, 113 provenant de femmes (30 %) et 291 d'hommes (70 %) anesthésiologistes, ont été enregistrées dans la base de données. Trois cent trente-trois répondants ont demandé le module et de ce nombre, 51 % ont préféré la livraison par poste régulière, 40 % par courriel et 3 % par télécopie. Les tests de chi carré n'ont montré aucune différence entre les sexes, les groupes d'âge, le lieu de pratique ou l'affiliation à des hôpitaux d'enseignement universitaire. Questionnés sur le degré d'aisance avec Internet sur une échelle en dix points (1 = faible, 10 = élevé), 59 % des répondants ont indiqué un niveau de 8 ou plus. Parmi ceux qui ont préféré le courrier régulier, 40 % ont indiqué qu'ils étaient aussi à l'aise avec la communication électronique.

**Conclusion :** Nous en avons conclu que le courriel et le courrier régulier doivent être offerts pour faciliter la formation médicale continue.

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**I**N the year 2000 the Royal College of Physicians and Surgeons of Canada instituted the Maintenance of Certification Program (MainCert) to ensure that physicians engaged in meaningful continuing education. Five categories of appropriate educational activities were listed. Our intent is to develop learning modules for anesthesiologists to enable them to engage in continuing education activities that would provide interesting educational experiences while obtaining MainCert credits.

With the expansion of electronic communication, many education providers have suggested that web-based learning might offer a convenient and inexpensive way to obtain materials for continuing education credits. However, to date a search of the pertinent literature revealed that, despite the expressed interest in distant education through computer programs, these programs are not actually used by physicians.<sup>1</sup> Therefore, before extensive work on web-based module development is carried out, it is necessary to determine if anesthesiologists are actually interested in this form of learning. In addition, we wished to explore the demographics of those interested in electronic delivery to find out whether particular characteristics influence the choice.

### Methods

After University of Toronto Ethics Committee approval, an explanatory letter and a 60 item questionnaire (Appendix available as "Additional Material" at [www.cja-jca.org](http://www.cja-jca.org)) were mailed to the 875 practicing anesthesiologists in Ontario listed by the College of Physicians and Surgeons of Ontario (CPSO). Before mailing, a research assistant coded the envelopes in order to conduct follow-up reminders should the return rate be unsatisfactory low for analysis. The coding system was kept confidential and not available to the primary researchers. A second mailing was administered after three months.

The first part of the questionnaire elicited information regarding the demographics of the respondents. The second part asked if they were interested in receiving a sample learning module and, if so, whether they preferred delivery by e-mail, regular mail or fax. This module, entitled *Laryngeal Mask Airway (LMA)*,<sup>A</sup> was designed so that it could be adapted for use in any of the three modalities. It consisted of photographs and a written compilation of current LMA literature followed by multiple-choice questions; it

was therefore possible to complete the module either on-line or in hard copy. Requests for the module obviously required that respondents include their name and address but this identifying page was separated from the remainder of the questionnaire, thereby maintaining the anonymity of the data.

Descriptive statistics were generated from the data. Pearson Chi square analyses were calculated between demographic items and delivery preference.

### Results

Of the 875 questionnaires mailed, 27 were returned due to incorrect addresses. A total of 413 were returned (47% return rate). Nine of those returned had little or no data due to the retirement of the anesthesiologist. A total of 404 responses, 113 (30%) female and 291 (70%) male were entered into a database. This ratio is consistent with the approximate gender distribution within the anesthesia profession in Ontario. Of those anesthesiologists registered with the CPSO in the year 2001, 26% were females and 74% were males.

The median age-range was 41 to 50 yr, the number of years in practice was 11 to 25 yr and the average number of continuing medical education (CME) courses taken in one year was three. One hundred and seventy-seven respondents (55%) were in non-teaching hospitals, with 138 (44%) in university or teaching hospitals.

Respondents were asked to rate their level of comfort using computers on a ten-point scale with level 1 indicating discomfort and level 10 indicating a high level of comfort. Fifty-nine percent indicated a level of

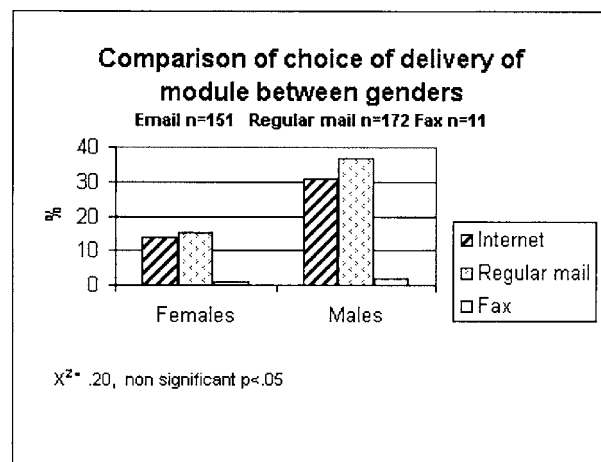


FIGURE 1 Comparison of choice of delivery of module between genders.

A Doyle J. Unpublished module 2001 (<http://anescme.med.utoronto.ca>).

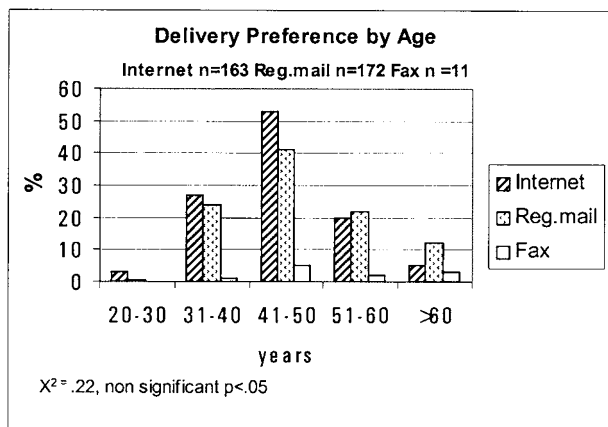


FIGURE 2 Delivery preference by age.

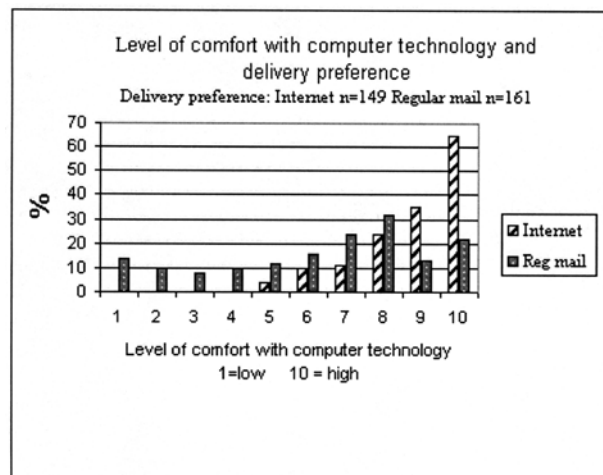


FIGURE 4 Level of comfort with computer technology and delivery preference.

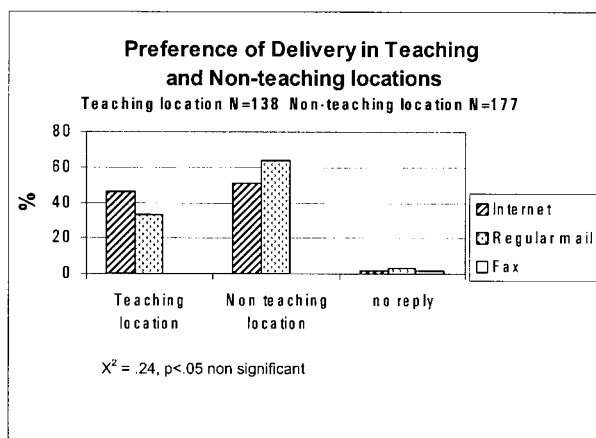


FIGURE 3 Preference of delivery in teaching and non-teaching locations.

8 or higher.

Three hundred and thirty-three respondents requested the LMA module and of these the preferred delivery was regular mail 172 (52%), e-mail 134 (40%), fax ten (3%), and preference not selected 17 (5%). Given the basic gender ratio of practicing anesthesiologists in Ontario, Chi squared analysis showed no significant differences in choice of delivery among gender, age nor hospital affiliation (Figures 1-3).

Respondents' level of comfort with computer technology was compared between those who requested

the module by regular mail vs those who requested e-mail. Chi square test showed that these results were significant,  $\chi^2 = 80.0 P < 0.001$ , though it was noted that Chi square cell 'level 10/request for computer delivery' was a source of significant relationship. That is, those who indicated 10 as their level of comfort with computers were most likely to request the modules on-line. At the same time, the data showed that some of those who indicated a relatively high level of comfort ( $\geq 8$  on a ten-point scale) still preferred to receive the module by regular mail (Figure 4).

Respondents (45) who declined the offer of a module gave no single reason for their decision. Two percent were engaged in work outside the specialty of anesthesia, 7% had retired, 44% indicated that the topic was not the problem and 47% were not interested in the topic.

**Discussion**

CME has often been criticized for its lack of attention to the needs of the target audience in terms of both content and method of delivery. Hollenberg<sup>2</sup> suggests that more attention should be given to the needs of individuals and has stated that traditional CME courses are "overused and frequently misused." In order to gain insights into current physician interest in changing modes of knowledge transmission, this study was undertaken to determine which methods of delivery would meet the needs of practicing anesthesiologists. It was recognized that computer-based learning, like

traditional delivery system, should be designed to integrate the learning characteristics of physicians and that both systems require the same standards for expected outcomes.

To explore the basic needs of physicians as learners, Slotnick<sup>3-5</sup> undertook a comprehensive overview of adult learning theories. Extrapolating from these theories he suggested that physicians as adults would: 1) be practical in their approach to learning (interested in solving problems of specific importance to them); 2) be active participants in their own learning; and 3) have multiple demands on their lives. His survey indicated that physicians were most interested in continuing education activities that provided CME credit, topics that were important to them and events that did not conflict with social or family obligations. However, the authors point out that, although the adult learning perspective can aid CME design, the theoretical approach does not address the cost benefits (financial, time and efforts) from a physician's point of view. Multiple demands on physicians' lives suggest that CME courses should address these cost benefit notions. The learning event should also be geared to their interest and be easily accessible. This concept is supported by a study of family physicians<sup>6</sup> which found that the cost factors in terms of time and energy appear to be more important in selecting sources of information than quality issues. In essence, physicians appear to value resources that are accessible, relevant and already known to them.<sup>5</sup>

In designing CME modules it was anticipated that computer based education would meet some of the above needs; that is, learners would find the Internet convenient and easily accessible, while at the same time providing CME credits. Our findings suggest that this is the case for many anesthesiologists. However, there are still others who prefer the traditional delivery methods.

Another issue to be recognized when designing CME modules is whether the learning methodology provided is equally effective as other traditional methods. A meta-analysis of computer based instruction in health professional education was undertaken by Cohen and Dacanay.<sup>7</sup> They concluded that, despite some gaps in the reporting of data, the overall findings indicated a promising future for computer education within the health professions.

It has often been intimated that age and/or gender may influence the use of computer technology. Previous research has shown that family and childcare responsibilities are the greatest barriers to further adult education for women.<sup>8</sup> In an attempt to overcome these barriers, a course on information technology was devel-

oped and offered on-line to women with the premise that they would be able to complete the course at times convenient to them.<sup>9</sup> Despite built-in flexibility, low time demands and low cost, students continued to request increased time extensions to complete the course. "The majority highlighted a lack of time to participate due to the inability to balance work, family and educational demands – the very barrier thought to be overcome by web based instruction."

It has often been speculated that age may be a barrier to the acceptance of computer based education. However, Dyck's<sup>10</sup> study compared computer anxiety in university and college students under the age of 30 to adults over 55 and found that, when the effects of computer experience were controlled, there were no gender or age effects. In contrast to this study, our survey included all age groups and further supports the notion that neither age nor gender can be viewed as barriers in the use of computer technologies.

In our literature search, little information was found regarding the actual use of computers by anesthesiologists for continuing education. Speculating that the Internet would be a valuable resource for isolated anesthesiologists, Oyston<sup>11</sup> conducted an on-line survey to determine, in part, which anesthesiologists were actually using the Internet to gain information related to their practice. Contrary to the authors' expectations, it was found that the majority of respondents were urban based and practiced in teaching or university hospital settings. In contrast, we found that location had no relationship to the expressed interest in participating in on-line continuing education.

We acknowledge that the difference between the above citations and our findings, which show insignificant effects among gender, age and location in the choice of course delivery, may be the outcome of time and the exponential increase in personal computers in the home and place of business.

Of interest to CME planners is the fact that, although many of our respondents indicated that they were comfortable with computer technology, they still requested the module to be sent by regular mail. Analyses of the data gave no indication why this may be so. It can be speculated that a hard copy may be easier to read, that it can be read in a variety of locations such as when one is travelling, or that downloading from the computer is costly. If the cost of production is factored into future modules, regular delivery could become a more expensive modality. This, in turn, may make the computer delivery more appealing. However, none of these notions are compelling without further evidence. In addition, we acknowledge that the results of this survey are limited

by the fact that it involves only Ontario anesthesiologists and therefore may not represent the needs of anesthesiologists worldwide.

In conclusion, our study suggests that in order to meet the educational needs of anesthesiologists practicing in Ontario, the delivery system needs to include both computer based and regular mail modalities.

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