ILL Request Number: 

DDS Transaction Number: 416624

Date: 3/12/2009 11:08:14 AM

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Journal Title: Anaesthesia and Intensive Care

Volume: 34
Issue: 6
Month/Year: 2006
Pages: 765-769

Article Author: Tucker, A; Miller, A; Sweeney, D & Jones JW
Article Title: Continuing medical education: A needs analysis for anaesthetists.

PubMed UI:

Notes: Print
Surveys

Continuing Medical Education: A Needs Analysis of Anaesthetists

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SUMMARY

The continuing medical education (CME) needs of anaesthetists within Australia, New Zealand, Hong Kong, Malaysia and Singapore have been largely unknown. The aim of this study was to undertake a comprehensive survey of the attitude to CME, learning preferences, attitudes and abilities relating to self-paced material, literature and information searching, preferred content and preferred approach to CME of anaesthetists within these countries. A survey tool was developed and refined for ease of use by pilot-testing. The survey was mailed to 3,156 anaesthetists throughout Australia, New Zealand, Hong Kong, Malaysia and Singapore. Three options for data return were offered; postal reply, facsimile and a data entry web-page.

There were 1800 responses, which represented a response rate of 57%. The demographics of the respondents were similar to the overall demographics of Fellows of the Australian and New Zealand College of Anaesthetists. A large majority of respondents (92%) stated that their involvement in CME improved patient care. However, almost half the respondents reported that they have difficulty either in participating in current CME activities (31%) or implementing new knowledge into their workplace (14%).

Anaesthetists within this region appear to be motivated by the need to make better decisions based on independent standards of practice. While Australia is a world leader in flexible education, it is still emerging as a discipline. Flexible education may be used to facilitate anaesthetists’ participation in CME activities and in implementation of new knowledge in their workplace.

Key Words: continuing medical education, flexible education, distance education, translational research, survey

Throughout their careers all medical specialists face an ongoing challenge of managing the growth of relevant knowledge. The time-honoured strategy by which anaesthetists update their knowledge of recent advances is via continuing medical education (CME). Furthermore, CME is increasingly being viewed as the most essential tool for improving the quality of medical care and various regulatory bodies are focusing upon CME as a means of ensuring competence to practise. While the effectiveness of CME is well established, its effectiveness would be severely limited if it did not meet the needs of the learners. Thus the challenge for providers of anaesthesia CME is to provide appropriate educational activities in a way that will meet the needs of anaesthetists.

The CME needs of anaesthetists within Australia, New Zealand, Hong Kong, Malaysia and Singapore have been largely unknown. This study undertook a comprehensive survey of the attitude to CME, learning preferences, attitudes and abilities relating to self-paced material, literature and information searching, preferred content and preferred approach to CME of anaesthetists within these countries. The purpose of this study was twofold: to determine the most suitable form, or forms, that CME should take and to determine the proportion of anaesthetists who had current skills and attributes that would enable their successful adoption of flexible education.

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Accepted for publication on July 25, 2006.

Anaesthesia and Intensive Care, Vol. 34, No. 8, December 2006
MATERIALS AND METHODS

This research was undertaken using a survey tool designed using conventional survey development methods. Following a number of interviews with clinicians, a thematic analysis was performed using a 'Force Field' analysis. Force Field Analysis is a method for listing, discussing and evaluating the various forces for and against an initiative, in this case the provision of flexible education. This technique was developed by Kurt Lewin, a pioneer in the field of social sciences. Lewin assumed that in any situation there are both driving forces and restraining forces that influence whether change may occur. Force Field Analysis analyses the forces affecting the adoption of flexible education. By knowing these an organization can develop strategies to reduce the impacts of the opposing forces and strengthen supporting forces. Force Field Analysis can determine if a proposed change has support and can identify obstacles to successful solutions.

Forces were catalogued following several group discussions and then ranked according to malleability and the impact they would have on decision-making were they to change. An assessment of the academic literature in the domain of learning preference and learning style was conducted. A ten-item survey tool was selected and refined for ease of use by piloting. Further literature regarding educational effectiveness was reviewed and questions investigating the acceptability by anaesthetists of potent educational activities were developed. The survey was mailed to 3,156 anaesthetists throughout Australia, New Zealand, Hong Kong, Malaysia and Singapore. Three options for data return were offered; postal reply, facsimile, and a data entry web-page. SPSS (v11) was used for the statistical analysis.

RESULTS

There were 1800 responses representing a response rate of 57%. A large majority of respondents (92%) believed that their involvement in CME improved patient care. However, almost half of respondents reported that they have difficulty either in participating in current CME activities (31%) or implementing new knowledge into their workplace (14%). Moreover, more than half of respondents stated that they have difficulty travelling to CME activities (Table 1), often due to difficulty in obtaining leave from clinical duties.

Respondents were motivated to engage in CME in order to learn to make better decisions and to ensure that their practice was in line with current best standards of care (Table 2). ‘Other’ reasons given for performing CME (8%) included maintaining a high quality of service, the enjoyment of learning, and maintaining contact with colleagues.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Motivators</th>
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<tbody>
<tr>
<td>%</td>
<td>The reasons that motivate me to do CME are to (CHOOSE TWO):</td>
</tr>
<tr>
<td>57</td>
<td>Learn how to make better decisions</td>
</tr>
<tr>
<td>50</td>
<td>Assess how my practice compares with new standards</td>
</tr>
<tr>
<td>43</td>
<td>Get points for ‘maintenance of professional standards’ (MOPS)</td>
</tr>
<tr>
<td>34</td>
<td>Assess how my practice compares with that of others</td>
</tr>
<tr>
<td>9</td>
<td>Travel</td>
</tr>
<tr>
<td>8</td>
<td>Other</td>
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These data relate to the question 3.

The distribution of skills and attributes of respondents relating to learning styles favoured the adoption of distance education overall (Table 3). Respondents described themselves as having personal and professional organizational skills that equip

<table>
<thead>
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<th>Table 3</th>
<th>Learning preferences</th>
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<td></td>
<td>1 (%)</td>
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<tr>
<td>Face-to-face interaction</td>
<td>22</td>
</tr>
<tr>
<td>Prioritizing tasks</td>
<td>41</td>
</tr>
<tr>
<td>Group discussion</td>
<td>4</td>
</tr>
<tr>
<td>Instructions</td>
<td>11</td>
</tr>
<tr>
<td>Assessing progress</td>
<td>48</td>
</tr>
<tr>
<td>Need for distance education</td>
<td>11</td>
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<tr>
<td>Technology</td>
<td>46</td>
</tr>
<tr>
<td>Sensory preference</td>
<td>42</td>
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<tr>
<td>Schedule</td>
<td>14</td>
</tr>
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</table>

These data relate to the learning preference questions (questions 5-13) with response numbers 1-3 (where response 1 indicates preferences favourable to the adoption of distance education and 3 indicates a preference that may be a barrier to its adoption).

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them well for a variety of CME approaches. In particular, 67% felt able to follow instructions with little direct help, 95% did not require immediate feedback regarding their educational progress, 86% were prepared to try new technologies associated with CME, 72% had schedules that were at least generally predictable and 91% were able to prioritize tasks for completion by deadlines. There was an even split between respondents who preferred to learn by “doing” (tactile 42%) and those who preferred to learn by reading or viewing material (visual 42%). Only half of the respondents (52%) reported a moderate-high need for distance education.

Most respondents (79%) preferred a short meeting rather than a course and most respondents (58%) preferred to work in a group. While 61% of respondents desired educational material for further study following CME activities, large proportions desired material to facilitate further discussion with the group, the presenter and their colleagues (28%, 31% and 44% respectively). Discussion support resources were requested by 42%. Self-paced CME material was preferred in all of the following formats by sizeable proportions of respondents; paper (37%), websites (31%) and email (23%). The concentration span reported by respondents is consistent with other workers’ estimates of adult learners with 41% able to complete blocks of work lasting up to half an hour.

Reading was the most popular format for learning activities (83%; Table 4). A large proportion of respondents felt that they lacked the skills for using online databases such as PubMed and Medline (42%). In keeping with this finding, Table 5 showed that review articles had the greatest effect on clinicians’ clinical practice (82%), whereas clinical trials and meta-analyses affected only 54% and 36% of clinicians’ practices. The practice of significant numbers of respondents remain highly influenced by experts who write editorials (42%) and practice guidelines (51%).

<table>
<thead>
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<th>Table 5</th>
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<tr>
<td><strong>Preferred publication type</strong></td>
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<td>%</td>
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<td>82</td>
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<td>54</td>
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There was an even split between respondents’ preferences for CME topics (adverse events 34%, techniques 29% and pharmaceuticals 23%) and format (topic-based 54% and case-based 42%). Most respondents believed that CME should be supplied at nominal cost (63%; < $20/H) with 40% believing that it should be provided free of any charge.

The demographics of the respondents were proportionally similar to the demographics of the fellows of the Australian and New Zealand College of Anaesthetists, i.e., 75% were male; 38% were in their 5th decade and 27% in their 6th decade of life; 79% in Australia, 14% in New Zealand, 5% in Asia; 84% predominantly practise anaesthesia, 10% intensive care medicine and 4% pain medicine; 62% work in Tertiary or major metropolitan, 18% in peripheral metropolitan, 14% in large regional and 4% in small regional hospitals.

**DISCUSSION**

Responses were obtained from a sizeable proportion of practising anaesthetists (57%) but not all, and as a consequence the respondents may be a biased sample. Nevertheless, this survey provides a detailed profile of a community of practice that comprises professionals who are generally independent practitioners, who work and like to study and reflect alone. Despite this, they have a strong sense of collegiality; they value the opinions and experience of others and...
enjoy and seek out the views of peers. They enjoy face-to-face interaction and discussion is important. They value the experience of colleagues, the critical opinions of others and do not appear to be threatened by the views of their colleagues. The independence of anaesthetists is illustrated by their ability to figure out instructions alone and monitor their own progress; most are not bothered by new challenges—technology or techniques—and like reflective thinking approaches to learning.

Anaesthetists learn through conceptual-practical integration. Like others, we found that they are motivated by the need to make better decisions based on independent standards of practice. They appear to be cooperative rather than competitive. They prefer to learn ‘doing skills’ in a conceptual context which is consistent with their need to make better decisions. In other words they want the rationale behind the ‘doing’. This gives them the basis for deciding and justifying why they do what they do. They prefer learning modes which are a combination of independent reflection (reading), interpersonal interaction (discussion with colleagues—formal and informal) and hands-on practice (workshops). These are multimodal learners. Each learning mode has a different value, benefit or contribution to practice, e.g. skills learning produces good technique; conceptual learning produces rationale and good decision-making; critique and experience of others assists with the knowledge of limitations/benefits/novel applications/constraints.

The delivery of CME should therefore be conceptually and practically integrated.

Anaesthetists are time-poor. They have little discretion over use of their time. They tend to respond to immediate priorities and reminders are therefore valued because they raise priorities, allowing things to get done. Schedules are largely predictable—or in other words ‘planned’—but may be inflexible, resulting in opportunities to attend sessions being limited. They compress learning into short bursts and may be considered learning sprinters rather than marathoners. However, medical education in the time-poor environment has been a problem for many years in all levels of medical training and strategies must be adopted to ensure effective CME in the time-poor environment.

Only half of the respondents reported a moderate-high need for distance education which may suggest that respondents may not be knowledgeable about contemporary modes of flexible learning delivery, equating it more with past ‘do-it-alone reading correspondence courses’ than with the richness of remote interpersonal interaction made possible by contemporary technology.

Distance or flexible education delivery allows distributed participants to study when it is convenient for them to do so. The major differences between distance or flexible education delivery and face-to-face education are the use of technology to facilitate learning, differences in the modes by which participants and tutors or facilitators interact with one another and differences in the times when people interact i.e. synchronous delivery (all participants interact at the same time) or asynchronous delivery (participants are not required to interact at specific times). Asynchronous delivery is used when time zones are an issue or when people work shift work. Increasingly distance or flexible education delivery modes are being used for professional and ongoing education when participants have difficulty interrupting their work schedules to accommodate traditional face-to-face learning or when specialist face-to-face education to small numbers of participants is not economically or logistically viable.

While it has been shown that a series of sessions punctuated by work is a more effective educational architecture for learning than a block of several sessions (it is thought that sessions punctuated by work may interweave the instructional material into vocational practice more effectively), this is clearly not the preference of the majority of anaesthetists (79%) who traditionally have been accustomed to ‘education by conference’. Most respondents preferred to work in a group which is consistent with education research trends that suggest professional learning occurs more through social interaction than through the simple provision of substantive content.

The response pattern in Table 4 is consistent with professionals who learn through multiple modes of interaction. Reading, for example, facilitates reflection about substantive content, its meaning and implications; collegiate discussion allows learners to mentally rehearse different scenarios involving knowledge and skills and to work through subtle details gained through the experience of others; hands-on activities allow learners to practise the application of knowledge and skills. These different modes integrate and consolidate content and skills, and prepare learners to use new skills and knowledge in practical application.

The issue of payment is interesting as a lack of willingness to pay more than a modest fee for CME does not reflect the ‘value’ of CME amongst anaesthetists who appear to place high levels of intrinsic value on learning. Do anaesthetists believe...
that they are not getting value for membership fees from their professional medical organizations? Do they feel that CME activities should be 'of right' based on existing fees? This is a potentially vexatious issue because alternative funding sources are often the focus of heated debate.

While flexible education is still emerging as a discipline, Australia is a world leader by virtue of its historical development of initiatives such as the 'School of the Air'; its far-flung population and the innovation of its industries (such as the finance sector) and universities. In addition, existing telecommunications infrastructure offers a broad range of network access options at relatively low cost compared to other countries.

Methods that may facilitate anaesthetists and external developers to participate in providing flexible education should be explored. In this area an integrated communication strategy that addresses knowledge deficits about flexible education will be important.

Furthermore, it is the opinion of the authors that with careful instructional design, interaction design and information architecture, flexible education could be successfully implemented to the benefit of anaesthetists and the profession of anaesthesia. Future studies should be directed at the effect of adopted educational interventions on clinical practice.

ACKNOWLEDGEMENTS

The authors wish to thank Dr Craig Noonan, Director of Education, Department of Anaesthesia and Perioperative Care, Monash Medical Centre, for reviewing the manuscript.

AUTHORS CONTRIBUTIONS

The Allori Group (Drs A. P. Tucker, A. Miller and D. Sweeney)—an educational group supported by The Beddoes Group—conceived the study, performed the data collection, data analysis and wrote the initial manuscript. Each step was conducted in collaboration with Dr R. W. Jones. All authors approved the final manuscript.

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