

# Survey of the members of the cardiovascular section of the Canadian Anesthesiologists' Society on the use of perioperative transesophageal echocardiography - a brief report

*[Enquête auprès des membres de la section cardio-vasculaire de la Société canadienne des anesthésiologistes sur l'usage de l'échographie transœsophagienne]*

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**Purpose:** Transesophageal echocardiography (TEE) is a useful diagnostic and monitoring tool in the operating room. In the United States, an increasing number of centres are training anesthesiologists to perform intraoperative TEE. In Canada, TEE has been slow to gain acceptance as an intraoperative monitor and little information is available on its use by the anesthesiologists across the country.

**Methods:** We surveyed all members of the cardiovascular section of the Canadian Anesthesiologists' Society, to find out how many perform TEE, how they acquired their skills and how they use TEE in their practice.

**Results:** The response rate was 48.4%. Most respondents were Canadian-trained cardiac anesthesiologists working in university centres. 91% of respondents stated that their centres offer intraoperative TEE services. Of those services, 35.1% were provided by anesthesiologists only, 13% by cardiologists only, and 51.9% by both. 53.8% of respondents have certification in intraoperative TEE (NBE/SCA, ASE or Provincial College). 90% of respondents use equipment that is less than five years old and multiplane probes are used by almost everyone. There was strong support for Canadian-based continuing medical education events in perioperative TEE.

**Conclusion:** TEE appears to be available in most cardiac centres in Canada and anesthesiologists are actively involved in providing intraoperative TEE services, using state-of-the-art equipment. Many anesthesiologists have formal training in TEE.

**Objectif :** L'échographie transœsophagienne (ETO) est un outil de diagnostic et de monitoring utile dans la salle d'opération. Aux États-Unis, un nombre croissant de centres forment les anesthésiologistes à l'usage de l'ETO péroratoire. Au Canada, l'ETO gagne lentement du

terrain comme moniteur péroratoire, mais peu d'informations sont disponibles sur son usage par les anesthésiologistes à travers le pays.

**Méthode :** Nous avons sondé tous les membres de la section cardio-vasculaire de la Société canadienne des anesthésiologistes pour savoir combien utilisent l'ETO, comment ils ont acquis leur formation et comment ils utilisent l'ETO dans leur pratique.

**Résultats :** Le taux de réponses a été de 48,4 %. La plupart des répondants ont reçu leur formation d'anesthésiologistes cardiaques au Canada et travaillent dans des centres universitaires. Ils sont 91 % à confirmer la présence de services péroratoires d'ETO dans leur centre. Parmi ces services, 35,1 % sont assurés par des anesthésiologistes seulement, 13 % par des cardiologues seulement et 51,9 % par les deux. On apprend que 53,8 % des répondants sont accrédités en ETO péroratoire (NBE/SCA, ASE ou Collège provincial). Aussi, 90 % des répondants disent utiliser du matériel de moins de cinq ans et presque tous se servent de sondes multiplans. Les répondants appuient fortement les activités canadiennes de formation médicale continue en ETO péroratoire.

**Conclusion :** L'ETO semble disponible dans la plupart des centres cardiaques du Canada et les anesthésiologistes, activement impliqués dans les services d'ETO péroratoire, utilisent du matériel de pointe. Beaucoup d'anesthésiologistes ont une formation officielle en ETO.

**T**RANSESOPHAGEAL echocardiography (TEE) is a useful diagnostic and monitoring tool in the operating room (OR) and intensive care unit (ICU).<sup>1</sup> In the United States, TEE has become a standard of practice in cardiac anesthesiology. Some data have been reported on

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the use of TEE in university centres in the United States,<sup>2</sup> but there currently exists little information on the use of TEE by Canadian anesthesiologists. We surveyed the members of the cardiovascular section of the Canadian Anesthesiologists' Society to find out how many perform TEE, how they acquired their skills and how they use TEE in their practice.

### Methods

A confidential questionnaire was sent out to all 124 members of the cardiovascular section of the Canadian Anesthesiologists' Society, between April and June 2000.

Twenty-four questions were asked, covering the respondents' type of practice, echo training, use of perioperative TEE and equipment. Those who did not use TEE were asked about their interest in learning it. We also inquired about the desire to see Canadian-based continuing medical education (CME) activities in perioperative TEE.

### Results

Sixty questionnaires were returned (48.4%). The Table presents the respondents' type of practice.

Fifty-five respondents (91.6%) stated that their hospital offers intraoperative TEE services: 35.1% by anesthesiologists only, 13% by cardiologists only, and 51.9% by both anesthesiologists and cardiologists.

Thirty-nine respondents (65.0%) used TEE in their practice. Of those, 46.2% underwent fellowship training in TEE, for a mean duration of 7.2 months (median 6, range 3 to 15 months). 28.2% trained within their own institution (mean duration nine months, median 6, range 1 to 24) and 25.6% acquired their skills through self-directed learning.

When asked about certification in intraoperative TEE, 28.2% had passed the Society of Cardiovascular Anesthesiologists/National Board of Echo Exam on perioperative TEE, 20.5% were certified by their province and 5.1% had passed the American Society of echocardiography certification examination in echocardiography. Fifty-nine percent of respondents did not have certification in perioperative TEE.

94.9% of respondents used equipment owned by their anesthesia department. The others used equipment owned by the OR or cardiology. Multiplane probes were used in 87.2% of cases. The equipment was less than two years old in 43.6% of cases, two to five years old in 46.2% and older than five years in 10.2%.

71.8% of respondents said they did not receive separate remuneration for intraoperative TEE services.

Intraoperative ventricular function and ischemia monitoring (94.9%), evaluation of valvular repairs

TABLE Background and professional activities

Years in practice <i>n</i> =60	0–5 yr 7 (11.7%)	5–10 yr 4 (6.7%)	10–15 yr 20 (33.3%)	>15 yr 29 (48.3%)
Anesthesia training <i>n</i> =60	Canada 52 (86.7%)	USA 2 (3.5%)	Other 6 (10.0%) (all UK)	
Practice setting <i>n</i> =60 (One blank)	University hospital 51 (86.4%)	Urban non- university 8 (13.6%)	Rural 0 (0%)	
How much cardiac in your practice ( <i>n</i> =60)	>1 per week 55 (91.7%)	<1 per week 4 (6.7%)	Never 1 (1.6%)	
ICU in your practice ( <i>n</i> =60)	Yes 28 (46.7%)	No 32 (53.3%)		

ICU=intensive care unit.

(87.1%) and the diagnosis of acute hemodynamic instability in cardiac and non-cardiac cases (84.6%) were the most common uses of TEE in the OR.

66.7% of respondents that worked in ICU used TEE both in the OR and in the ICU. The rest used TEE in the OR only. Among the anesthesiologists that did not work in the ICU, 47.6% still performed TEE in both the OR and the ICU.

84.6% reported that they use pulmonary artery catheters (PAC) "always" or "often" in cardiac surgery. Of these, 72.7% said that TEE does not influence their decision to use a PAC. Twenty-seven percent said they were less likely to use a PAC if they used TEE.

85.6% of respondents who did not use TEE in their practice thought it would be a useful skill to have, but 23.8% of them said that they were too busy to commit any time to it. Finally, 89.8% of the respondents said they were interested in attending TEE-related CME events held in Canada.

### Discussion

This is, to our knowledge, the first survey on the use of perioperative TEE by cardiovascular anesthesiologists in Canada and it has several implications. First, it provides a glimpse into the use of intraoperative TEE in Canada. Although a breakdown by region is not available, our survey suggests that many cardiac centres in Canada offer intraoperative TEE services (91% of respondents say it is available in their centre) and anesthesiologists are very involved in providing those services. This is consistent with a US survey, which showed that 91% of university centres in the United States offer TEE services.<sup>2</sup> Most respondents were

Canadian-trained and worked in university centres. This was expected since cardiac surgery in Canada is performed predominantly in university-affiliated hospitals. Half of our respondents worked in the ICU. Of those who did not work in the ICU, over half still performed TEE in the ICU. This suggests that many anesthesiologists may participate in the "on call" schedule for TEE in their institution. Our respondents had access to modern TEE equipment owned by their anesthesia department but many commented that, because of limited resources, the equipment was not available for every case.

Second, our data suggest that the majority of TEE practitioners in Canada tend to have some formal TEE training. In their comments, many respondents emphasized the need for formal training before using TEE in the OR. This data is important, at a time where organizations in Canada and the US try to define appropriate training for intraoperative TEE. Several respondents proposed a model of practice, where "advanced" anesthesiologists in each department could act as resource-persons for a larger number of cardiac anesthesiologists with "basic skills" in TEE (defined in the ASA/SCA Guidelines<sup>1</sup>).

Our data show that intraoperative monitoring of cardiac function is the primary use of intraoperative TEE by our respondents, but 87% of them also take part in the evaluation of various cardiac repairs. This participation in the surgical decision-making process emphasizes the changing role of anesthesiologists and the increasing importance of TEE in cardiovascular surgery in Canada.

Finally, our results suggest that there is a strong desire in Canada for TEE training programs intended for CV- anesthesiologists and most respondents expressed support for Canadian-based CME events in the field of perioperative TEE.

#### Conclusion

Intraoperative TEE is becoming increasingly important in the practice of cardiovascular anesthesia and it is available in many cardiac centres across Canada. A significant number of respondents had formal training in TEE and others were interested in getting it. There is also strong interest in Canadian-based CME events on intraoperative TEE.

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#### References

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