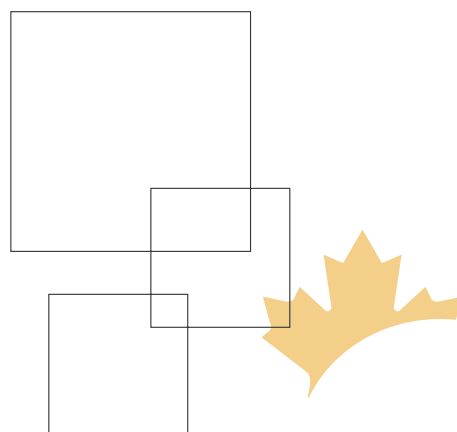


# 2010 CCS/CSE Guidelines

for Training and Maintenance of Competency  
in Adult Echocardiography



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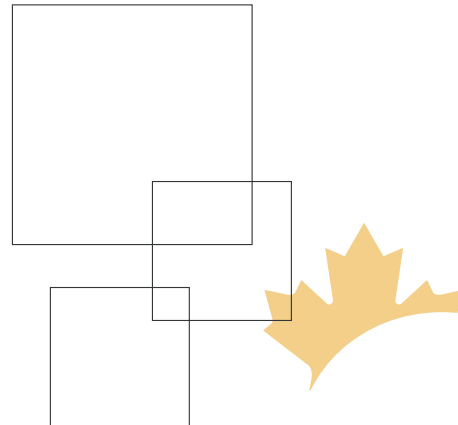
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### Abstract

Guidelines for the provision of echocardiography in Canada were jointly developed and published by the Canadian Cardiovascular Society and Canadian Society of Echocardiography in 2005. Since this publication, there has been increasing recognition of the importance of echocardiography to patient care and a greater use of focused, point-of-care echocardiography by physicians of diverse clinical backgrounds and variable training. New guidelines for physician training and maintenance of competence in adult echocardiography were required to ensure that physicians providing either focused, point-of-care echocardiography or comprehensive echocardiography are appropriately trained and proficient in their use of echocardiography. In addition, revision of the guidelines was required to address technological advances and the desire to standardize echocardiography training across the country to facilitate the national recognition of a physician's expertise in echocardiography.

## Why update physician training guidelines now?

The last guidelines for the provision of echocardiography in Canada were jointly developed by the Canadian Cardiovascular Society (CCS) and the Canadian Society of Echocardiography (CSE) in 2004 and published in 2005.<sup>1</sup> These guidelines highlighted the central role of echocardiography in the assessment of most cardiac disorders, along with the need to ensure that echocardiography services were offered by appropriately trained individuals in a safe, reliable, and timely manner. Since these guidelines were published, physicians from diverse specialties and clinical backgrounds have developed a greater appreciation for the value of echocardiography in many clinical settings relevant to their specialties. This understanding, accompanied by technological advances and the development of inexpensive, portable echocardiography equipment, has led to the increasing use of focused, point-of care echocardiography by physicians with variable clinical experiences and training. Updated training guidelines were required to ensure that these physicians were appropriately trained with the expertise required to correctly and reliably identify pathologies relevant to their practice.

Revisions to the training guidelines were also required in response to the Royal College of Physicians and Surgeons of Canada (RCPSC) recent changes to the objectives and requirements for echocardiography in adult cardiology training programs.<sup>2,3</sup> Previously, adult cardiology training programs could be certified by only requiring trainees to complete four blocks (one block = 4 weeks) in echocardiography. Cardiology trainees meeting these minimum requirements would not be eligible to independently practise transthoracic echocardiography as they did not fulfill the 6 month time commitment of Level 2 training in the previous CCS/CSE guidelines.<sup>1</sup> The trainee's additional expertise in echocardiography, although insufficient to independently practise transthoracic echocardiography, was recognized as Level 1 training in

the previous guidelines. The RCPSC recently updated their subspecialty training requirements for adult cardiology and mandated a minimum six blocks of echocardiography and the requirement for proficiency in the technical performance and interpretation of a transthoracic echocardiogram.<sup>2,3</sup> This change aligns the objectives and training requirements of a RCPSC certified program with the Level 2 recommendations for independent practise of transthoracic echocardiography in the CCS/CSE guidelines.

Level 1 training, as previously defined in the CCS/CSE training guidelines,<sup>1</sup> is no longer relevant due to the RCPSC mandated changes to echocardiography training within an adult cardiology training program. However, a new introductory level, or revised Level 1 training, was required to address physician training issues related to the performance of focused, point-of-care echocardiography by non-cardiology specialists for the purpose of identifying a limited list of conditions in specific clinical situations.

Finally, physicians completing a fellowship in echocardiography (Level 3 training) have expressed a desire to have their expertise recognized by a governing body such as the RCPSC. Thus, new national guidelines were required to standardize physician training and training programs, potentially serving as a framework for future recognition by the RCPSC.

## Training and Proficiency Levels

### Level 1:

An introductory level of training that provides the physician with an understanding of the role and diagnostic capability of echocardiography in clinical practice. The training provides an exposure to the performance and interpretation of transthoracic echocardiography. Trainees completing Level 1 training will be conversant with the clinical utility and limitations of transthoracic echocardiography. Level 1 training does not impart the physician with the ability to independently perform or interpret a comprehensive transthoracic echocardiogram.

However, Level 1 training does allow the physician to perform a focused point-of-care transthoracic echocardiogram to recognize a limited list of potential diagnoses in specific clinical settings.

### Level 2:

An advanced level of training designed to impart the skills necessary to independently perform and interpret a comprehensive transthoracic echocardiogram by physicians with knowledge of clinical cardiology. Trainees are exposed to a diverse array of cardiac pathologies and are expected to achieve proficiency with M-mode, 2-D, Doppler blood flow and tissue Doppler imaging modalities, including the use of quantitative techniques to evaluate cardiac chamber size, function and hemodynamics. Level 2 training exposes the trainee to contrast, transesophageal and stress echocardiography; however, it does not impart the competence to independently perform or interpret a transesophageal, stress or contrast echocardiogram without additional training. Physicians completing a 3-year RCPSC certified adult cardiology training program are expected to have attained Level 2 proficiency in transthoracic echocardiography.

### Level 3:

This training is designed for physicians interested in developing expertise in all of the major modalities of echocardiography. Level 3 training imparts the physician with (1) proficiency in transthoracic, transesophageal, contrast (for left heart opacification) and stress echocardiography; (2) skills required to train and supervise sonographer and physician trainees, and (3) training to potentially supervise an echocardiography laboratory. Trainees are exposed to emerging technologies, such as 3D-echocardiography. Trainees should also be exposed to research using echocardiography, and participate in educational activities related to echocardiography, to develop skills required to pursue an academic career. Successful completion of Level 3 training will hopefully be recognized by a governing body such as the RCPSC in the future.

Entry criteria for each level of training are not specialty specific. The time commitment and case volume required to develop proficiency for each level are summarized in Table 1. Importantly, training requires an echocardiography laboratory with a sufficient case volume, supervising physicians with appropriate expertise, and a developed process to document training and evaluate the progress of trainees as outlined in the full document.

## Maintenance of Competence

Maintenance of competence is as important as the achievement of proficiency, and requires continued exposure to adequate clinical volume, a variety of cardiac pathology and continuing medical education (CME) to keep abreast of technological developments and advancements in the use of echocardiography techniques. Physicians should attend accredited CME or accredited self-assessment programs directly related to the technology or application of echocardiography, whether performing or interpreting focused or comprehensive transthoracic echocardiograms.<sup>4</sup> The guidelines summarize CME requirements for the performance of focused and comprehensive transthoracic echocardiography. Case volume requirements for maintenance of competence are summarized in Table 2.

## Summary

The new “Guidelines for Physician Training and Maintenance of Competency in Adult Echocardiography” are significantly more comprehensive than earlier guidelines and address many important issues not previously covered. These guidelines provide a blueprint for physician training despite different clinical backgrounds, and help standardize physician training and training programs across the country. Adherence to the guidelines will ensure that physicians providing echocardiography have acquired sufficient expertise required for their specific practice. The document will also provide a framework for other national societies to standardize their training programs in echocardiography and provide a benchmark by which competency in adult echocardiography may be measured.

**Table 1** Minimum Time and Case Volume Requirements for Each Training Level

Proficiency	Minimum Duration of Training (Cumulative Training Blocks [weeks]*)	TTE Performed (Cumulative)	TTE Interpreted (Cumulative)	Contrast	TEE (Cumulative)	Stress Echo (Cumulative)
Level 1 (limited)	1 [4]	40**	90**	-	-	-
Level 2 (basic)	6 [24]	150	450	-	-	-
Level 2 (with TEE)	6 [24]	150	450	-	100	-
Level 2 (with stress)	6 [24]	150	450	-	-	100
Level 2 (with contrast)	6 [24]	150	450	20 Performed 20 Interpreted	-	-
Level 3	19 [76]	300	1000	20 Performed 40 Interpreted	150	125

\* 1 training block = 4 weeks

\*\* denotes a limited focused examination

**Table 2** Case Volume Requirements for Maintenance of Competence

Technique	Case Volume (per year)
Focused Transthoracic Echocardiography	40
Transthoracic Echocardiography	400
Transesophageal Echocardiography	25
Stress Echocardiography	75
Contrast Echocardiography	10
3D - Echocardiography	20

## References

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