

4th Echocardiography Course on Congenital Heart Disease

The Hospital for Sick Children's Daniels Hollywood Theatre



April 4 – 6, 2019

Course Directors: Luc Mertens, Mark Friedberg, Andreea Dragulescu

Co-directors: Jan Marek, Folkert Meijboom

Organizing Committee: Meryl Cohen, Leo Lopez, Jacqueline Wheatley

Administrative Co-ordination: Nita Choos Singh, Britney Colussi, Calvin Arsenault

Overall Objectives

This course offers a unique introduction into Paediatric Echocardiography and imaging of Congenital Heart Disease. The main goal is to improve the knowledge of physicians and sonographers who perform and/or interpret echocardiograms in newborn and paediatric patient populations or perform echocardiographic studies in adults with repaired congenital heart disease.

Specific course objectives are:

1. Introduce the specific technical aspects of congenital and paediatric echocardiography: image acquisition and representation.
2. Introduction to cardiac morphology and how it relates to echocardiographic imaging.
3. Overview of pre-operative and post-operative imaging of the most common congenital defects.
4. Echocardiographic assessment of more complex congenital defects.
5. Introduction to assessment of systolic and diastolic function in children with a special focus on novel techniques for evaluating LV and RV function.

Day 1 – Thursday, April 4, 2019

12:00 – 1:00 pm	Registration
1:00 – 1:05 pm	Opening remarks <i>Luc Mertens, Toronto, ON, Canada</i>

Session 1 – The Basics

Session Chair: Luc Mertens, Toronto, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the practical and technical aspects of congenital and paediatric echocardiography
2. Understand the specific imaging views and how to acquire, optimize and represent the images to facilitate interpretation
3. Correct measurements of cardiac structure for changes in body size - the use of z- scores

1:05 – 1:20 pm	Preparing a child for a paediatric echocardiographic study <i>Judy Jones, London, ON, Canada</i>
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1:20 – 1:40 pm	Image optimization for paediatric scanning <i>Cristina Almeida, Toronto, ON, Canada</i>
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1:40 – 2:10 pm	Imaging windows and views in CHD <i>Jackie Wheatley, Toronto, ON, Canada</i>
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2:10 – 2:30 pm	Correcting quantitative measures for body size and age <i>Leo Lopez, Palo Alto, CA, USA</i>
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2:30 – 3:00 pm	Coffee Break
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Session 2 – Echo-Morphology Correlations (Part 1)

Session Chair: Andreea Dragulescu, Toronto, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the segmental and sequential morphologic approach and its application in echocardiographic imaging
2. Understand the normal situs and identification of situs anomalies
3. Understand the morphology of inter-atrial communications and its relationship to echocardiographic imaging
4. Identify the main paediatric echocardiographic images and what they assess through a live demonstration

3:00 – 3:30 pm	Segmental approach to normal and abnormal situs: morphology <i>Andrew Cook, London, UK</i>
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3:30 – 4:00 pm	Echocardiographic assessment of situs and situs anomalies <i>Jan Marek, London, UK</i>
4:00 – 4:30 pm	Inter-atrial communications: morphology <i>Andrew Cook, London, UK</i>
4:30 – 5:00 pm	Inter-atrial communications: echocardiography <i>Michael Grattan, London, ON, Canada</i>
5:00 – 6:00 pm	LIVE SCANNING DEMONSTRATION The Paediatric Echocardiogram <i>Cristina Almeida, Toronto, ON, Canada</i>

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Day 2 – Friday, April 5, 2019

7:00 – 8:00 am **Breakfast**

Session 3 – Echo-Morphology Correlations (Part 2)

Session Chair: Leo Lopez, Palo Alto, CA, USA

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the morphology of ventricular septal defects and how they can be identified and described by echocardiographic imaging
2. Understand the pre-operative and post-operative anatomy of atrioventricular septal defects and what is important in pre-operative and post-operative imaging

8:00 – 8:30 am	Ventricular septal defects: morphology <i>Andrew Cook, London, UK</i>
8:30 – 9:00 am	Ventricular septal defects: echocardiography <i>Conall Morgan, Toronto, ON, Canada</i>
9:00 – 9:30 am	Atrioventricular septal defects: morphology <i>Andrew Cook, London, UK</i>
9:30 – 10:00 am	Atrioventricular septal defects: echocardiography <i>Meryl Cohen, Philadelphia, PA, USA</i>

10:00 – 10:30 am **Coffee Break**

Session 4 – Echo-Morphology Correlations (Part 3)

Session Chair: Mark Friedberg, Toronto, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the morphology and echocardiographic evaluation of left ventricular outflow tract obstruction and aortic arch anomalies

10:30 – 11:00 am	Left ventricular outflow tract obstruction: morphology <i>Andrew Cook, London, UK</i>
11:00 – 11:30 am	Left ventricular outflow tract obstruction: echocardiography <i>Folkert Meijboom, Utrecht, The Netherlands</i>
11:30 am – 12:00 pm	Aortic coarctation: pre and post-operative echocardiography <i>Fraser Golding, Toronto, ON, Canada</i>

12:00 – 1:00 pm

Lunch Break

Session 5 – Echo-Morphology Correlations (Part 4)

Session Chair: Michael Grattan, London, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the morphology of Tetralogy of Fallot
2. Understand what is important in the pre-operative echocardiogram
3. Understand what is important in the post-operative echocardiogram

1:00 – 1:30 pm

Tetralogy of Fallot: morphology
Andrew Cook, London, UK

1:30 – 2:00 pm

Tetralogy of Fallot: pre-operative echocardiography
Luc Mertens, Toronto, ON, Canada

2:00 – 2:30 pm

Tetralogy of Fallot: post-operative echocardiography
Laura Mercer-Rosa, Philadelphia, PA, USA

2:30 – 3:00 pm

Coffee Break

Session 6 – Echo-Morphology Correlations (Part 5)

Session Chair: Andreea Dragulescu, Toronto, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the morphology of Transposition of the Great Arteries
2. Identify what is important in the pre-operative echo
3. Understand the echocardiographic imaging after the atrial switch procedure
4. Understand the echocardiographic imaging after the arterial switch procedure

3:00 – 3:30 pm

Transposition of the Great Arteries: morphology
Andrew Cook, London, UK

3:30 – 4:00 pm

Transposition of the Great Arteries: pre-operative echocardiography
Meryl Cohen, Philadelphia, PA, USA

4:00 – 4:30 pm

The atrial switch operation – echocardiographic assessment
Folkert Meijboom, Utrecht, The Netherlands

4:30 – 5:00 pm

The arterial switch operation – echocardiographic assessment
Luc Mertens, Toronto, ON, Canada

5:00 – 6:00 pm

LIVE SCANNING DEMONSTRATION
The Functional Protocol
Nick Arbic, Toronto, ON, Canada

Day 3 – Saturday, April 6, 2019

7:00 – 8:00 am **Breakfast**

Session 7 – Echo-Morphology Correlations (Part 6)

Session Chair: Luc Mertens, Toronto, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the anatomy of double outlet right ventricle and the corresponding echocardiographic views including the role for 3-D echocardiography and 3-D printing techniques in surgical planning
2. Understand the anatomy of anomalous coronary artery origins and the corresponding echocardiographic views

8:00 – 8:30 am Double outlet right ventricle: morphology
Andrew Cook, London, UK

8:30 – 9:00 am Double outlet right ventricle: echocardiography and the role of 3-D echo and 3-D printing techniques in surgical planning
Andreea Dragulescu, Toronto, ON, Canada

9:00 – 9:30 am Abnormal origin of the coronary arteries from the pulmonary arteries
Leo Lopez, Palo Alto, CA, USA

9:30 – 10:00 am Abnormal origin of the coronary arteries from the aorta
Vitor Guerra, Toronto, ON, Canada

10:00 – 10:30 am **Coffee Break**

Session 8 – Echo-Morphology Correlations (Part 7)

Session Chair: Leo Lopez, Palo Alto, CA, USA

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the morphology of functionally single ventricles
2. Understand what is important in the initial assessment of functionally single ventricles
3. Understand what is important to be imaged after surgical palliative stages

10:30 – 11:00 am Functionally univentricular hearts: morphology
Andrew Cook, London, UK

11:00 – 11:30 am Functionally univentricular hearts: pre-intervention assessment
Vitor Guerra, Toronto, ON, Canada

11:30 am – 12:00 pm Functionally univentricular hearts: assessment after first stage palliation
Meryl Cohen, Philadelphia, PA, USA

12:00 – 12:30 pm Assessment after bidirectional Glenn and Fontan operation
Luc Mertens, Toronto, ON, Canada

12:30 – 1:30 pm Lunch Break

Session 9 – Echo-Morphology Correlations (Part 8)

Session Chair: Folkert Meijboom, Utrecht, The Netherlands

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the morphology of congenitally corrected transposition
2. Understand what is important in the echocardiographic evaluation of congenitally corrected transposition
3. Understand the morphology of pulmonary venous anomalies
4. Understand what is important in the echocardiographic imaging of pulmonary venous anomalies

1:30 – 2:00 pm Congenitally corrected transposition: morphology
Andrew Cook, London, UK

2:00 – 2:30 pm Congenitally corrected transposition: echocardiography
Fraser Golding, Toronto, ON, Canada

2:30 – 3:00 pm Pulmonary venous anomalies: morphology
Andrew Cook, London, UK

3:00 – 3:30 pm Pulmonary venous anomalies: echocardiography
Jan Marek, London, UK

3:30 – 4:00 pm Coffee Break

Session 10 – Assessment of Ventricular Function in CHD

Session Chair: Jan Marek, London, UK

Learning Objectives

At the end of this session, participants will be able to:

1. Understand the echocardiographic techniques that can be used to assess left ventricular systolic and diastolic function
2. Understand the echocardiographic techniques that can be used to evaluate right ventricular function

3. Understand the echocardiographic techniques used for assessment of single ventricular function

4:00 – 4:30 pm	Assessment of left ventricular systolic function in children – a practical approach <i>Mark Friedberg, Toronto, ON, Canada</i>
4:30 – 5:00 pm	Assessment of left ventricular diastolic function in children – a practical approach <i>Luc Mertens, Toronto, ON, Canada</i>
5:00 – 5:30 pm	Assessment of right ventricular systolic and diastolic function <i>Laura Mercer-Rosa, Philadelphia, PA, USA</i>
5:30 – 6:00 pm	Stress Echocardiography in paediatric heart disease <i>Barbara Cifra, Toronto, ON, Canada</i>

Accreditation Information

This course is accredited to provide Continuing Medical Education (CME) for physicians and sonographers.

This event has been approved by the Canadian Paediatric Society for a maximum of **20.5 credit hours** as an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of The Royal College of Physicians and Surgeons of Canada. The specific opinions and content of this event are not necessarily those of the CPS, and are the responsibility of the organizer(s) alone.

Accreditation Information for sonographers will be added at a later time once confirmed.