

# Welcome

## 6<sup>th</sup> ANNUAL INTENSIVE EXAM ORIENTATED CONGENITAL ECHOCARDIOGRAPHY COURSE

**Thursday 08 & Friday 09 November 2018**

Course Organisers: Nitha Naqvi & P Venugopalan

Exam focused course consisting of training by experts via **MCQs, video clips** and top tips to enhance theoretical and practical knowledge of congenital echocardiography. Ideal for those undertaking the European congenital accreditation exam & for individuals keen to enhance their knowledge to improve their clinical practice. **(Optional Mock Exam).**

**Endorsed by RCPCH and BSE with CPD points**

**This course is run independently and separately from the EACVI.**



Paediatricians with Expertise in Cardiology  
Special Interest Group

**Our course is an abridged 2-day session that would serve as:**

- 1. An opportunity to revise and fine tune for those preparing for the exam**
- 2. An improvement in day to day echo skills for all who attend**
- 3. A taster for those who are undecided**

**We would be grateful for your feedback with constructive suggestions for improvements**

## **What are your benefits from getting the EACVI certification in CHD? [Ref EACVI web page]**

Designed to test the competency of an individual's ability to perform, interpret and report unsupervised routine congenital echocardiographic studies

Sets a European standard for competence and excellence in congenital echocardiography

Brings credibility and professional legitimacy to an individual by demonstrating his/her competency in gaining this certification

Enhances the professional image

**EuroEcho-Imaging Congress  
Friday 7 December 2018,  
Milan, Italy**

**On line registration (Fee 450 Euro)**

**Written Examination  
MCQs & Video Clips**

**Log book of 250 echoes  
&  
10 DOPS with reports**

**Receive the Certificate by email**

## **On line registration**

**candidates will be sent an online questionnaire where they must declare their supervisor and provide information on their training.**

**Candidate's seats will only be secured once this questionnaire is completed - otherwise their seats will be cancelled.**

## **Supervisor**

**All candidates need a local supervisor who:**

1. Is an already practising paediatric/congenital echocardiographers
2. Has a high level of expertise
3. Holds National/European Specialist recognition in paediatric/adult congenital cardiology
4. May be an EACVI certified echocardiographer who has held EACVI/AEPC CHD echo Certification for >1 year

**1. Choose a supervisor who can spare time for you**

**2. Choose a supervisor whom you can access frequently**

**3. Choose a supervisor who knows about the accreditation process**

# **Written examination**

**Each candidate is provided with an ipad with MCQ  
and Video clips with questions**

75 MCQs – best of 5 answers – **110 minutes**

50 Video questions – generally best of 5 answers – **90 minutes**

The video clips belong to 9-12 patients

Start – candidate check in **07.00 AM**

Duration of the examination: About 4 hours (08.45 to 12.35)

Pass mark: Generally around 65% - last year was high – 70%



## Video clips

There are 4-5 questions related to one patient generally

A set of questions may just follow the patient from diagnosis to management to post op follow up and long term complications

Some of these questions may be related to the same echo clip – OR there may be a question after 1-3 video clips

There may be questions without separate echo clips ( e.g. what operation would you do for this baby?)



Reading List helps you save webpages and links for you to read later, even when you are not connected to the internet.

To add the current page to your Reading List, click the + button in the toolbar. You can also Shift-click a link to quickly add it to your list.

EDITION 2013

# EACVI CORE SYLLABUS

A learning framework for continuous medical education in echocardiography

Prepared by the Education Committee of  
the European Association of Cardiovascular Imaging

Authors

## **EAE individual accreditation - Congenital Heart Disease (CHD): reading list**

- Echocardiography in Pediatric and Congenital Heart Disease: From Fetus to Adult  
by Wyman Lai, Luc Mertens, Meryl Cohen, and Tal Geva (2009)
- Echocardiography in Pediatric and Adult Congenital Heart Disease  
by Benjamin W. Eidem, Frank Cetta, and Patrick W. O'Leary (2009)
- Echocardiography in Adult Congenital Heart Disease  
by Wei Li, Michael Henein, and Michael A. Gatzoulis (2007)
- Echocardiography: A Practical Guide for Reporting,  
by Helen Rimington (Author), John Chambers (Author)

## Top tips -1 MCQs

Read Physics chapter from a recommended text book

25% Physics questions, but most of these are applied Physics which we use in our day to day echocardiography

MCQ books available in the market – mostly for the adult exam – many of the questions apply to us as well

Revising these books 3-4 times helps to secure a pass in the written exam

## Top tips -1 MCQs (continued)

Complex calculations are not usually asked – but better to have a calculator with you at the exam

Beware of long question stems and answer stems

Negative questions are common – sometimes double negatives

There is no negative marking

- 1. Side lobe artefact**
- 2. Reverberation artefact**
- 3. High pass filter**
- 4. Harmonic imaging**
- 5. Tissue Doppler imaging**
- 6. Frame rate**
- 7. Nyquist limit – PRF**
- 8. Doppler effect**
- 9. Imaging in adolescent with limited echo window**
- 10. Continuity equation**
- 11. IVRT**
- 12. RV / PA/ RA pressure calculations**

**13. Post Mustard**

**14. ASD- diastolic flattening**

**15. VSD- volume loading side**

**16. Sinus venous ASD**

**17. AVSD**

**18. CoA**

**19. TGA**

**20. CCTGA**

**21. Tetralogy**

**22. Normal situs description**

**23 Truncus**

**24. AR - assessment**

**25. PR - assessment**

**26. AS – assessment**

**27. TAPVD**

**28. PAPVD**

**29. Coronary sinus**

**30. Cardiomyopathy**

**31. univentricular heart (adult)**

**32. Atrial situs / LV / RV morphology**

**33. PDA**

**34. PA / IVS**



## Video clips

An important test of our experience in reporting and reviewing echo images

Each question has 5 options – answer the best of 5  
Some questions ask you to choose more than one answer

No negative marks

## Top tips – 2 Video clips

Attending cardiology echo meetings & MDTs would be very helpful

Use the recommended text books – some of them have video clips and also on line echo images to revise

Easier for those working in the Cardiology Department compared to PECs

Read the questions carefully for clues

As you move forward, do not keep thinking of an old question

**REMEMBER:** There are normal echo images too!

- 1. TGA**
- 2. Murmur at sports screening (18 year old)**
- 3. AVSD**
- 4. Ebstein's**
- 5. Tetralogy**
- 6. 35 year old with sats 89%**
- 7. Coarctation and re-coarctation**
- 8. 15 year old immigrant**

## Completed Log Book

To be submitted within 12 months of sitting the theory examination – but can include studies performed from 12 months before to 12 months after the exam

These CHD TTE reports must be reported and performed by the candidate

The log book entry should include:

- Date performed

- Hospital number of the patient

- Type of study – All are TTE

- Diagnostic group

- Comments – findings in brief – two to three lines only

<b>Septation defects</b>	<b>60</b>
<b>Atrioventricular discordance</b>	<b>01</b>
<b>Arterioventricular discordance</b>	<b>01</b>
<b>Left heart obstructions</b>	<b>15</b>
<b>Right heart obstructions</b>	<b>27</b>
<b>Patent duct</b>	<b>08</b>
<b>Situs anomalies, isomerism</b>	<b>02</b>
<b>Postoperative congenital heart disease</b>	<b>56</b>
<b>Endocarditis</b>	<b>00</b>
<b>Left Ventricular Hypertrophy</b>	<b>00</b>
<b>Hypertrophic Cardiomyopathy</b>	<b>02</b>
<b>Dilated Cardiomyopathy</b>	<b>03</b>
<b>Right Heart Failure</b>	<b>00</b>
<b>Pericardial Disease</b>	<b>01</b>
<b>Mass/Thrombus</b>	<b>00</b>
<b>Coronary anomalies</b>	<b>00</b>
<b>Miscellaneous</b>	<b>16</b>
<b>No significant cardiac abnormality</b>	<b>58</b>
<b>Total cases</b>	<b>250</b>



# European Association of Cardiovascular Imaging

A Registered Branch of the ESC

*To promote excellence in clinical diagnosis, research, technical development, and education in cardiovascular ultrasound and other imaging modalities in Europe.*



EUROPEAN  
SOCIETY OF  
CARDIOLOGY®

#	Study date dd/mm/yy Chronological order first to last e.g. 21/09/2009 to 20/09/2011	Patient's hospital record #	Study Category (e.g. Right heart obstructions)	Main Diagnosis or Conclusion (Shorthand diagnosis e.g. severe pulmonary valve stenosis)	Comments: (Might be something related to image quality or striking findings - Please do NOT include a full report here)
97					
98					
99					
100					

#	Study date dd/mm/yy	Patient's hospital record #	Study	Diagnosis	Comments
134	11/05/2013	3469215	TTE	Left heart obstruction	Normal LV size and function, Aortic valve bicuspid with mild AR jets, P1/2t 550 ms, TR 2m/s, no coarct
135	11/05/2013	3366430	TTE	Post op - VSD, PS	Good post op recovery, no residual flows, No AR, Mild TR 1.5 m/sec, small non-obstructive ridge in LVOT, normal LV function, No RVOT velocity
136	22/05/2013	3482886	TTE	Right Heart Obstruction	Large perimembranous malalignment VSD, Infundibular and valvular PS, RVOT vel 2 m/sec, left to right shunt
137	24/05/2013	3473025	TTE	Septation defect	Small secundum defect in the atrial septum with left to right flow, no RV volume overload, normal arch and pulmonary veins
138	28/05/2013	3036812	TTE	Miscellaneous	Post surgical excision thoracic teratoma, residual flat septum, but otherwise normal LV function, normal PA pressures
139	28/05/2013	3402692	TTE	Post op CHD	Post surgical repair ASD, residual RV dilatation, good LV function, intact atrial septum with patch, no pericardial effusion
140	28/05/2013	3050971	TTE	Right Heart Obstruction	Thickened pulmonary valve with velocity 2.5 m/s, no branch stenosis, no RVH, TR 2.5m/s
141	28/05/2013	3464352	TTE	Right Heart Obstruction	Fallot with unrestricted perimemb malaligned VSD, RVOT obstm, infundibular and valvular, vel 4m/s
142	28/05/2013	3478678	TTE	Septation defect	Complete AVSD, balanced, moderate RAVVR, large atrial component, small ventricular component, normal arch and pul veins
143					Double inlet left ventricle. aorta anterior left

## Top tips – 3 Log Book

Start the log book if possible one year before you sit for the exam – this helps the exam preparation as well

I have found an excel file for entry good to review and finally copy-paste to the log book

Upto 1/3 rd (80) can be normal studies



## Completed DOPS

To be submitted within 12 months of sitting the theory examination

These CHD TTE reports must be reported and performed by the candidate, under supervision

10 DOPS required, to be supervised by at least 3 supervisors

Keep an anonymised copy of the study with you

The DOPS submission should be accompanied by a full report – again anonymised



A Registered Branch of the EAC



### **Congenital echocardiography accreditation**

Candidate's number

DATE: (dd/mm/yy)

Assessor's name<sup>9</sup>

CHD-121208-ATH

□□/□□/□□

Please mark one of the circles for each component of the exercise on a scale of 1 (extremely poor) to 9 (extremely good). A score of 1-2 is considered unsatisfactory; 4-6 satisfactory and 7-9 is considered above that expected, for the stage of training and level of experience. If you score 1, 2 or 3 please give a brief example in the comments box. Please feel free to add any other relevant comments about the ultraendurance, strength and endurance.

[illegible]

## FEEDBACK

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**SIGNATURES**

ASSESSOR'S SIGNATURE \_\_\_\_\_



## **EAE/AEPC DIRECT OBSERVATION OF PROCEDURAL SKILLS (DOPS):**

### **Congenital echocardiography accreditation**

Candidate's number

DATE: (dd/mm/yy)

Assessor's name\*

CHD-121208-ATH

□□/□□/□□

.....

Please mark one of the circles for each component of the exercise on a scale of 1 (extremely poor) to 9 (extremely good). A score of 1-3 is considered unsatisfactory, 4-6 satisfactory and 7-9 is considered above that expected, for the stage of training and level of experience. If you score 1, 2 or 3 please give a brief example in the comments box. Please feel free to add any other relevant opinions about the ultrasonographer's strengths and weaknesses.

<b>1. Puts patient and parents at ease, explains the procedure and behaves in a considerate manner throughout the scan.</b>									
<input type="radio"/> Not observed or applicable	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8	<input type="radio"/> 9
	UNSATISFACTORY			SATISFACTORY			ABOVE EXPECTED		
<b>2. Obtains all relevant demographic data, details of referring doctor, relevant previous treatment and reasons for the scan.</b>									
<input type="radio"/> Not observed or applicable	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8	<input type="radio"/> 9
<b>3. Uses appropriate transducers, machine settings and ultrasound modalities throughout the scan.</b>									
<input type="radio"/> Not observed or applicable	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8	<input type="radio"/> 9
<b>4. Identifies <u>visceroatrial situs</u> and position of the heart</b>									
<input type="radio"/> Not observed or applicable	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8	<input type="radio"/> 9
<b>5. Identifies venous, atrioventricular and <u>ventriculoarterial</u> connections</b>									
<input type="radio"/> Not observed or applicable	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8	<input type="radio"/> 9
<b>6. Identifies abnormalities, distinguishing between normal variants and pathological findings</b>									
<input type="radio"/> Not observed or applicable	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8	<input type="radio"/> 9
<b>7. Knows the differential diagnosis when there are indirect signs of anomalies (eg <u>dilated right heart</u>)</b>									
<input type="radio"/> Not observed or applicable	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8	<input type="radio"/> 9
<b>8. Interprets <u>peak measurements</u> appropriately, demonstrating knowledge of limitations of calculations</b>									

## Top tips – 3 DOPS

Start the DOPS when are nearing 200 echoes on the log book

Any practising Cardiology Consultant would be eligible to be your assessor for DOPS

Also PECs and Sonographers who have been accredited for > 1 year

## Top tips – 3 DOPS (continued)

Make sure all the items on the DOPS form are completed – some aspects may not be assessed in some studies, but need to be marked as ‘ Not observed or applicable’

Please make sure yourself and the DOPS assessor sign the form

Once the 10 DOPS are completed, your supervisor will review these and fill in the DOPS summary form

## Summary of DOPS completed

This form is to be completed by the educational supervisor

Candidate's number: CHD-121208-ATH

Hospital: BRIGHTON & SUSSEX UNIVERSITY HOSPITALS NHS TRUST Name of educational supervisor: DR KEVIN S ROMAN,  
CONSULTANT PAEDIATRIC CARDIOLOGIST

Number of DOPS completed: ELEVEN

Total number of judges assessing these: FIVE

	Range of scores	Mean 'rater' score	Any score of 1-3?
1. Puts patient and parents at ease, explains the procedure and behaves in a considerate manner throughout the scan.			
2. Obtains all relevant demographic data, details of referring doctor, relevant previous treatment and reasons for the scan.			
3. Uses appropriate transducers, machine settings and ultrasound modalities throughout the scan.			
4. Identifies viscerotrial situs and position of the heart			
5. Identifies venous, atrioventricular and ventriculoarterial connections			
6. Identifies abnormalities, distinguishing between normal variants and pathological findings			

Log books and DOPS must be submitted on line through the web site.

Always make sure you receive and save the receipt for on line submissions



**& Best Wishes**