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Barts and The London   
NHS Trust

# The North East Thames 3rd Emergency and Critical Care ECHO Course

for specialists in Acute Medicine, Emergency Medicine,  
Critical Care and Anaesthesia

organised by Barts and The London NHS Trust in partnership with  
Infomed Research and Training, on Monday 11 January 2010 at Conference Centre,  
Russell Square House, 10-12 Russell Square, London WC1B 5EH

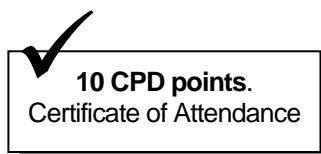
## Programme Director:

Dr Tim Harris, Consultant Emergency Physician,  
Royal London Hospital

## The Faculty includes:

- Dr Pat O'Callaghan, Consultant Cardiologist,  
Barts and The London NHS Trust
- Dr Ceri Davies, Consultant Cardiologist,  
Barts and The London NHS Trust
- Dr Chris Critoph, SpR Cardiologist,  
King George Hospital, Essex
- Dr Mo Thavasothy,  
Consultant in Intensive Care Medicine,  
Royal London Hospital
- Dr Valentina Puntmann, MD, PhD, MRCP  
SpR in Cardiovascular Clinical Pharmacology and  
Honorary Clinical Lecturer, Imperial College London
- Dr Nicola Jones, SpR in Cardiology
- Ms Judith Kling, Echocardiographer,  
Charing Cross Hospital, London
- Ms Marilyn Gabrido, Echocardiographer  
Barts and The London NHS Trust

Organised in partnership with



## This Course is aimed at:

Doctors who are involved in the assessment of acutely unwell patients and as such it is for Consultants, Registrars and Middle Grades in Critical Care, Anaesthesia, Acute Medicine and Emergency Medicine. Doctors with US basic knowledge and some practical experience.

## This Course is about:

- ☑ Using ECHO in the assessment of the acutely unwell patient: learn how to use cardiac ultrasound to perform a limited ECHO and provide reliable information in specific areas including left ventricular function, identifying pericardial effusions/tamponade, identifying valvular dysfunction and assessing right ventricular pressure overload.
- ☑ Using limited ECHO as a useful adjuvant in rapidly assessing patients in cardiac arrest.

## Practical Sessions:

- Obtaining the basic cardiac windows and identifying normal structures
  - Assessing LV function
- Assessing Valvular Function
  - RV Pressure Overload

Course equipment and technical support kindly provided without restrictions by



## MORE ABOUT THE COURSE

**Echocardiography is a valuable investigation in acutely unwell patients** providing information on the structural integrity and performance of the heart. It takes many years to develop a full skill set and provide comprehensive diagnostic information. However, there is good evidence that a short period of training allows the non cardiologist to use cardiac ultrasound to perform a limited ECHO and provide reliable information in specific areas including left ventricular function, identifying pericardial effusions/tamponade, identifying valvular dysfunction and assessing right ventricular pressure overload (massive and submassive pulmonary embolism) (*Jackson 2000, Mandavia 2001, Moore 2002, Ranazzo 2003*). Clinical evaluation of the prevailing haemodynamic process in shocked patients has been shown to be unreliable (*Boldt 1994*) and may be supplemented by ECHO (*Randazzo 2003*). Limited ECHO has also been shown to be a useful adjuvant in rapidly assessing patients in cardiac arrest providing information on the aetiology and prognosis.

**This course concentrates on providing non cardiologists with basic skills** to assist in the assessment and resuscitation of acutely unwell patients. It is best suited to those who have some basic knowledge of ultrasound techniques. All candidates should read through the lecture and try to visit their echocardiography (or ultrasound) departments prior to the course to maximise learning.

**The objectives of the day are for the candidates to be able to perform the following:**

- Basic ECHO windows – subcostal, PSSA, PSLA, apical 4 chamber
- Assess LV function and grading the performance as hyperdynamic, normal, moderately impaired or severely impaired; measure wall thickness and chamber size
- Identify pericardial and pleural effusions
- Observe aortic and mitral valve motion and identify gross stenosis (no grading) and use Doppler to identify significant regurgitation (not quantify)
- Gross assessment of RV pressure – volume overload – RV:LV ratio > 1 (apical view), IVC plethora (>22mm, respiratory variation) and RV wall thickness

## PROGRAMME

08.30 – 09.00 **Registration**

09.00 – 09.40

### **The role of focussed ECHO for non-cardiologists**

**Dr Tim Harris**,  
Consultant Emergency Physician,  
Royal London Hospital

- The SHOC scan
- Role of limited ECHO in
  - assessing the hypotensive patient (AAA, abdominal free fluid, LV fn, RV fn & pericardial fluid, deep vein thrombosis)
  - the arrested patient

09.40 – 10.25

### **Introduction to ECHO**

**Dr Valentina Puntmann**, Hon Clinical Research Fellow, Imperial College, London  
(with the aid of a Sonographer a demonstrating on a model with projection on a screen)

- **Add Physics and knobology and simplify talk**
- Revision of Machine set up: Transducers; Probe and the beam; Machine anatomy
- Obtaining best quality images: Probe orientation; Depth; Focus; TGC; Scanning – when left or right
- Cardiac anatomy
- Standard windows (parasternal short / long axis, apical, subcostal):
  - acquisition and echocardiographic cardiac anatomy
  - chambers, valves, pericardium

10.25 – 11.10

#### **PRACTICAL SESSION A**

### **Obtaining Basic Cardiac Windows and Identifying Normal Structures**

11.10 – 11.25 **Tea and coffee break**

11.25 – 11.55

### **Pericardial Effusion and Tamponade**

**Dr Chris Critoph**, SpR Cardiologist,  
King George Hospital, Essex

- Identifying pericardial fluid – and pleural fluid
- Identifying tamponade – right atrial and ventricular diastolic collapse

11.55 – 12.25

## RV Acute Pressure Overload

TBC, Consultant Cardiologist,

Topics to be covered:

- RV dilation – apical 4 chamber RV:LV ratio
- Acute vs. chronic RV pressure overload, RV wall thickness
- RV contractility
- Loss IVC collapse

12.25 – 13.25

**PRACTICAL SESSION B**

## RV Pressure Overload

13.25 – 14.05 Lunch

14.05 – 14.50

## LV Performance, Cardiac Output

Dr Ceri Davies, Consultant Cardiologist,  
Barts and The London NHS Trust

Topics to be covered:

- Normal ventricular performance
- Grading LV performance
  - Subjective visual estimation from observation – hyperdynamic, normal > 55%, moderate 30 – 55%, poor < 30%
  - Ejection fraction – accuracy and interpretation
- Left sided chamber size and wall thickness

14.50 - 15.50

**PRACTICAL SESSION C**

## Assessing LV Function

15.50 – 16.05 Tea and coffee break

16.05 – 16.50

## Left Sided Valvular Lesions

Dr Pat O'Callaghan, Consultant Cardiologist,  
Barts and The London NHS Trust

Topics to be covered:

- Visual assessment of aortic /mitral valves
- Assessment of mitral/aortic stenosis and regurgitation (colour flow)
- Brief explanation of how cardiologists grade valve lesions by ECHO
  - Subjective assessment of left sided stenosis and regurgitation; introduction to colour doppler

16.50 – 17.50

**PRACTICAL SESSION D**

## Assessing Valvular Function

17.50 - 18.20

## Q&A, Revision Videos and Cases

Led by TBC, with all pm lecturers

18.20

**Collection of Attendance Certificates and close**

## REFERENCES

Jackson EJ, Rudoni RR, Hauser AM et al. Prospective Evaluation of Two Dimensional Transthoracic Echocardiography in Emergency Department Patients with Suspected Pulmonary Embolism. *Acad. Emerg. Med.* 2000;7:994-998

Mandavia DP, Hoffner RJ, Mahaney K, Henderson SO. Bedside Echocardiography by Emergency Physicians. *Ann. Emerg. Med.* 2001;38:377-82

Morre CL, Rose GA, Talal VS et al. Determination of Left Ventricular Function by Emergency Physician Echocardiography of Hypotensive Patients. *Acad. Emerg. Med.* 2002;9:186-193

Randazzo MR, Snoey ER, Levitt DO, Binder PA. Accuracy of Emergency Physician Assessment of Left Ventricular Ejection Fraction and Central Venous Pressure. *Acad. Emerg. Med.* 2003; 10:973-977

Boldt J, Menes T, Woolruck M, et al. Is Continuous Cardiac Output Measurement Using Thermodilution Reliable in Critically Ill Patients? *Crit care Med* 1994;22:1913-8

**Also:**

Kircher BJ. Non invasive estimation of right atrial pressure from the inspiratory collapse of the IVC. *Am. J. Cardiol.* 1990;66:493-6

Duvekot JJ, Cherex EC, Tan WD et al. Measurement of the Anterior - Posterior Diameter Inferior Vena Cava by Ultrasonography. *Cardiovasc. Res.* 1994;28:1269-72

Gullance G, Saoia MT. Echocardiographic of the Inferior Vena Caval Wall Motion for Studies of Right Heart Dynamics and Function. *Clin. Cardiol.* 1984;7:393-404

## Booking

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## COURSE FEE

**£295 (incl. 15% VAT).**

*Doctors from Barts & The London NHS Trust – call Infomed  
for information on discounts.*

Course fee includes CD-ROM with copies of the lecture  
slides, lunch and refreshments.

Course fee does not include accommodation.

## HOW TO REGISTER

Complete delegate and payment details, below,  
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Confirmation and receipt will be sent to you by email.

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