

**Stress echo interpretation course**  
**Milton Keynes University Hospital NHS Foundation Trust**  
**15 -19 October 2018**

**Organiser & Course Director:**

Professor Attila KARDOS MD, PhD, FRCP, FESC  
Consultant Cardiologist (EACVI member)

**Co-directors:**

Dr László HALMAI MD, MRCP, FESC  
Consultant Cardiologist (EACVI member)

Mr Diogo MARTINS  
Senior Chief Physiologist (EACVI member)  
Departmental Manager

Date: 15-19-October 2018.

Venue: Witan Gate - Board Room, Witan Gate House, Milton Keynes Central,  
MK9 1GB United Kingdom

Technical Support from TomTec Ltd Germany, Educational support from  
Bracco UK Ltd.

**COURSE SUMMARY:**

The 5 days course will teach participants about the basics of stress echocardiography and its value in clinical settings (see course syllabus) as well as the workstation based 1:1 reporting sessions aim to develop skills and competency in reporting stress echo for ischaemia and viability detection and in structural heart disease. The course will familiarise participants with the use of stress echo in non-ischaemic heart conditions according to the latest European guidelines. The stress echo analysis will be performed on the specialised echo software platform by TomTec.

Formal lectures will provide the theoretical and practical tutorials. Workstation based 150 uploaded cases for image analysis will be delivered and saved for individual participants as their logbook. At the end of the course there will be a formal competency in reporting assessment of 20 cases (approximate pass mark 60%). By completing the course you will be provided with a course completion certificate. If the reporting exam results meet the 60% mark a competency certificate in interpreting stress echocardiography will be issued.

Please register online via the Tom Tec website.

# Course Syllabus

1. Stress echo lab: (equipment) (treadmill, Bicycle, pharmacological agents (vasodilators, Regadason, Adenosin, Dipyridamol, Dobutamine, ergometrin)
2. Physiology of stress test (using exercise and pharmacological agents)
3. Echocardiograph: acquisition, quad, views, rest-low dose-peak- recovery for stress echo. Pre stress test minimal echo dataset, echo acquisition during SE: 2D LV (apical 4CV, 3CV, 2CV, PSLAX, PSSAX) 3D LV, CE 2D and 3D. Peak triggered low MI perfusion images, Data analysis: RWMA at rest and during stress test.
4. Safety of stress echocardiography
5. Contrast agents and its safety:
6. Contrast echocardiograph setup, administration of different contrast agents, echo parameters. The evidence of use of contrast.
7. Safety equipment
8. Ischaemia detection
9. Viability assessment
10. Risk assessment prior high risk surgery
11. SE for non-ischaemic conditions
12. SE in Valvular heart disease
  - a. Aortic valve stenosis (moderate, severe asymptomatic, low flow low gradient severe AS with LVSD, low flow low gradient severe AS with preserved LVSF)
  - b. Aortic valve regurgitation (asymptomatic)
  - c. Mitral valve stenosis (mod –severe?)
  - d. Mitral valve regurgitation asymptomatic
  - e. Congenital
13. Diastolic SE (to investigate the cause of breathlessness)
14. Dilated CMP
15. Hypertrophic cardiomyopathy
16. Pulmonary hypertension
17. Athletes heart
18. Accreditation in stress echocardiography (who should perform, minimum numbers etc)
19. Multimodality imaging in IHD and VHD
20. Others
21. ESC /EACVI and ASE guidelines

## Faculty

### Local

Professor Attila KARDOS MD PhD FRCP FESC  
Consultant Cardiologist  
Professor of Cardiovascular Medicine, University of  
Buckingham, Hon Senior Lecturer Univ Oxford, Milton  
Keynes University Hospital, UK

Dr László HALMAI (MD MRCP FESC)  
Consultant Cardiologist  
Milton Keynes University Hospital, UK

Mr Diogo MARTINS  
Senior Chief Physiologist  
Departmental Manager Milton Keynes University  
Hospital UK

### International

Professor Harald BECHER MD PhD FRCP  
Heart&Stroke Foundation Chair for Cardiovascular  
Research ABACUS, Mazankowski Alberta Heart  
Institute, University of Alberta Hospital, Edmonton,  
Alberta, Canada

Professor Paul LEESON PhD FRCP FESC  
Professor of Cardiovascular Medicine  
Clinical Director, Oxford Cardiovascular Clinical  
Research Facility  
John Radcliffe Hospital. Oxford. UK

## COURSE PROGRAMME

### Monday 15 October

Chair: Paul Leeson & Attila Kardos

**Lecture 1** . Indications for stress echocardiography (ESC/NICE/ASE guidelines) safety.

Attila Kardos

9:00-9:15

**Lecture 2** . Stress echocardiography modalities, laboratory requirements, safety.

Harald Becher

9:20 – 9:35

**Lecture 3** . Equipment, acquisition, interpretation.

Attila Kardos

9:40 – 9:55

**Lecture 4** . Contrast echocardiography in the stress echo lab the latest guidelines, safety.

Harald Becher

10:00-10:25

**Lecture 5** . Equipment settings, trouble shooting pitfalls of Contrast echocardiography.

Attila Kardos

10:30-10:45

Q & A 10:45-11:00

### Coffee break 11:00-11:15

Chair: Paul Leeson & Attila Kardos

**Lecture 7** . Ischaemia detection and viability assessment with stress echocardiography.

Paul Leeson

11:15-11:30

**Lecture 8** . Risk assessment prior high risk surgery with stress echocardiography.

Laszlo Halmai

11:30 – 11:45

**Lecture 9** . Stress echo in Valvular heart disease (Aortic Valve stenosis).

Attila Kardos

11:45 – 12:00

### lunch break 1200-1300

Chair Attila Kardos

**Lecture 10** . Stress echo in Valvular heart disease (Aortic Valve regurgitation)  
Laszlo Halmai  
13:00-13:15

**Lecture 11** . Stress echo in Valvular heart disease (Mitral Valve stenosis)  
Laszlo Halmai  
13:20 – 13:35

**Lecture 12** . Stress echo in Valvular heart disease (Mitral Valve regurgitation)  
Harald Becher

13:40 – 13:55

**Workstation analysis 1. Stress echocardiography for Ischaemia detection**

14:00-15:00

**Coffee break**

15:00 – 15:15

**Workstation analysis 2. Stress echocardiography for Ischaemia detection**

15:15 – 17:15

Q & A session

## **Tuesday 16 October**

Chair: Attila Kardos

**Lecture 13.** Stress echo in structural heart disease (Hypertrophic Cardiomyopathy).

Laszlo Halmai

9:00 – 9:15

**Workstation analysis 3.**

9:15-10:15

**Coffee break 10:15 -11:30**

**Workstation analysis 4.**

10:30 -12:30

**lunch break 1230-1330**

Chair: Attila Kardos

**Lecture 14** Diastolic stress echo to investigate the cause of exertional breathlessness.

Laszlo Halmai

13:30 – 13:50

**Workstation analysis 5.**

13:50 -14:55

**Coffee break 14:55 -15:10**

**Workstation analysis 6.**

15:10 -18:00

Summary / Q & A session

**Wednesday 17 October**

Chair: Attila Kardos

**Workstation analysis 7.**

9:00-10:15

**Coffee brake 10:15 -11:30**

**Workstation analysis 8.**

10:30 -12:30

**lunch break 1230-1330**

Chair: Attila Kardos

**Lecture 15** Stress echo in Pulmonary hypertension

Laszlo Halmai

13:30 – 13:50

**Workstation analysis 9.**

13:50 -14:55

**Coffee break 14:55 -15:10**

**Workstation analysis 10.**

15:10 -18:00

Summary / Q & A session

## **Thursday 18 October**

Chair: Attila Kardos & Harald Becher

### **Workstation analysis 11.**

9:00-10:15

### **Coffee break 10:15 -11:30**

### **Workstation analysis 12.**

10:30 -12:30

### **lunch break 1230-1330**

**Lecture 16.** BSE – Stress echo accreditation criteria  
Attila Kardos

13:30 – 13:50

### **Workstation analysis 13.**

13:50 -14:55

### **Coffee break 14:55 -15:10**

### **Workstation analysis 14.**

15:10 -18:00

Summary / Q & A session

**Friday 19 October**

Chair: Attila Kardos & Harald Becher

**Workstation analysis 15.**

9:00-10:15

**Coffee break 10:15 -11:30**

**Workstation analysis 16.**

10:30 -12:30

**lunch break 1230-1330**

**Accreditation - Interpretation Exam (20 cases)**

13:30 – 14:50

**Coffee break 14:50 -15:20 (Feed back questionnaire)**

**Certificates and Course closure**

15:20