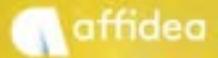


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CARDIAC MRI COURSE:

CURRENT TECHNIQUES AND PRINCIPLES

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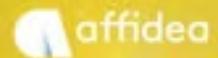
28th September 	Opening session and welcome to the course
	Welcome message, program schedule and FAQs
Speakers	Dr Alessandro Roncacci & Dr Diana Penha
5th October 	Safety in MRI Studies, patient preparation and medication
	<ul style="list-style-type: none">• Describe correct patient preparation for cardio from a nurses' perspective• List the most common medications available when carrying out cardiac MR• Describe procedures in case of incidents/emergencies (cardiac arrest, anaphylactic reactions etc)
Speakers	Hélder Rodrigues, João Gama, Liliana Fernandes e Nuno Camelo
12th October 	Cardiac Anatomy
	<ul style="list-style-type: none">• Heart, vessels and valves• Cardiac physiology• Interpretation of cardiac trace/ECG• Anatomy as seen on CMR
Speakers	Dr Diana Penha
19th October 	CMR Sequences and protocols
	<ul style="list-style-type: none">• Identify the main cardiac planes and understand their role within CMR.• Understand the current CMR guidelines that will become the foundation of site protocols.• Understand the standard sequences used in Cardiac MRI.• Describe the key differences between morphological and functional scanning.• Recognize the clinical value of each sequence.• Find the pulse sequence options available with your GE scanner.
Speakers	Waldemar Senczenko

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26th October | **Bright Blood and Black Blood – Deep Dive**

- Describe the difference between bright blood and black blood in CMR;
- List the different bright blood sequences and describe their application in clinical use;
- List the different black blood sequences and describe their application in clinical routine;
- Recognize the use of these sequences in Angiography (related to CMR)
- Understand specific tips and tricks associated with these techniques
- Circle input - Post-processing/troubleshooting with images

Speakers | Panagiotis Athanasopoulos

2nd November | **Late Gadolinium/Myocardial Delayed Enhancement**

- State the purpose of LGE;
- Explain the effect of Inversion Time (TI) on image contrast;
- Recognize the different options available for scanning and optimization: MDE vs PSIR, 3d vs 2d MDE, 1rr versus 2rr etc;
- Understand the common pitfalls and how to mitigate them;
- Circle input - Post-processing/troubleshooting with images.

Speakers | Waldemar Senczenko and Zane Liepa

2nd November | **Flow imaging – from standard to 4d flow**

- Explain the purpose of general flow measurement;
- Describe the principles behind Phase Contrast (Flow) imaging;
- Recognize common artifacts and how to avoid them;
- Describe how to perform flow analysis in CMR;
- Explain 4-D flow and its application;
- Outline any pitfalls with 4-D flow;
- Outline post-processing techniques in 4-D flow.

Speakers | Tiago Luz

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9th November | Adenosine and Regadenoson stress studies

- Describe the mechanisms of action of both Adenosine and Regadenoson.
- Outline the advantages and disadvantages of Adenosine.
- List the advantages and disadvantages of Regadenoson.
- Describe the methodology of application in cardio MRI - from preparation to application.
- Outline the optimal cardiac perfusion sequence:
 - The type of sequence
 - Describe care to be taken when applying the sequence
 - 1rr vs 2rr, artefacts, 1.5T vs 3T, optimization
- Circle input - Post-processing/troubleshooting with images

Speakers | Dr Gorka Bastarikka

16th November | T1, T2 & T2* Mapping

- Explain the principles and purpose of T1, T2 and T2* mapping
- Describe the workflow for applying the techniques on the GE system
- Outline when to apply these techniques
- List specific tips and tricks associated with these sequences
- Outline techniques for post-processing
- Circle input - Post-processing/troubleshooting with images

Speakers | Justin Leonard

23rd November | CMR scanning demo (Basic)

- Understand the 'flow' of a routine CMR exam
- Recognize the techniques for planning and optimizing all general sequences in CMR
- Understand specific tips and tricks associated with main sequences
- Recognize good vs bad patient set-up

Speakers | Eman Ali and Doug Vierck

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23rd November | **CMR scanning demo (Advanced)**

- Recognize the techniques for planning and optimizing all advanced sequences in CMR such as flow, perfusion, LGE, mapping
- Understand specific tips and tricks associated with advanced sequences
- Understand specific tips and tricks associated with difficult patients

Speakers | Eman Ali and Doug Vierck

30th November | **CMR scanning demo - Artefact recognition and Image Optimization**

- Interactive Q&A session related to problems encountered during MCR scanning
 - Artefacts
 - Poor technique
 - Optimization with difficult patients

Speakers | Eman Ali and Doug Vierck

7th December | **CMR scanning demo technical cases – How we do it**

- Recognize the techniques for planning and optimizing advanced sequences in CMR
- Understand specific tips and tricks associated with specific pathologies

Speakers | João Gama and Liliana Fernandes

7th December | **Thank You and Goodbye**

Review of the sessions & Thank you message

Speakers | Dr Alessandro Roncacci & Dr Diana Penha