

# Update of the European Association of Cardiovascular Imaging (EACVI) Core Syllabus for the European Cardiovascular Magnetic Resonance Certification Exam

Steffen E. Petersen<sup>1\*</sup>, Ana G. Almeida<sup>2</sup>, Francisco Alpendurada<sup>3</sup>, Redha Boubertakh<sup>1</sup>, Chiara Bucciarelli-Ducci<sup>4</sup>, Bernard Cosyns<sup>5</sup>, Gerald F. Greil<sup>6</sup>, Theodoros D. Karamitsos<sup>7</sup>, Patrizio Lancellotti<sup>8</sup>, Alexandros S. Stefanidis<sup>9</sup>, Oliver Tann<sup>10</sup>, Mark Westwood<sup>1</sup>, and Sven Plein<sup>11</sup>, On behalf of the Education Committee of the European Association of Cardiovascular Imaging Association (EACVI)

<sup>1</sup>NIHR Cardiovascular Biomedical Research Unit at Barts, William Harvey Research Institute, Queen Mary University of London, London EC1M 6BQ, UK; <sup>2</sup>Department of Cardiology, Non-invasive Cardiac Imaging Unit, University Hospital Santa Maria, Faculty of Medicine of Lisbon University, Lisbon, Portugal; <sup>3</sup>NIHR Cardiovascular Biomedical Research Unit, Royal Brompton & Harefield NHS Trust and Imperial College, London, UK; <sup>4</sup>NIHR Bristol Cardiovascular Biomedical Research Unit, Bristol Heart Institute, University of Bristol, Bristol, UK; <sup>5</sup>Cardiology Department, CHIREC, UZ Brussel, ICMI (In Vivo Cellular and Molecular Imaging) Laboratory, Free University of Brussels, Belgium; <sup>6</sup>Division of Imaging Sciences and Biomedical Engineering, The Rayne Institute, King's College London, St. Thomas' Hospital, London, UK; <sup>7</sup>1st Department of Cardiology, AHEPA University Hospital, Aristotle University of Thessaloniki, Greece; <sup>8</sup>GIGA Cardiovascular Sciences, Departments of Cardiology, Heart Valve Clinic, University of Liège, CHU Sart Tilman, Liège, Belgium; <sup>9</sup>1st Department of Cardiology, Echocardiography, General Hospital of Nikea, Piraeus, Greece; <sup>10</sup>Cardiorespiratory Unit, Great Ormond Street Hospital, Great Ormond Street, London, UK; and <sup>11</sup>Multidisciplinary Cardiovascular Research Centre, The Division of Cardiovascular and Diabetes Research, Leeds Institute of Genetics, Health and Therapeutics, University of Leeds, Leeds, UK

Received 2 April 2014; accepted after revision 3 April 2014; online publish-ahead-of-print 22 May 2014

An updated version of the European Association of Cardiovascular Imaging (EACVI) Core Syllabus for the European Cardiovascular Magnetic Resonance (CMR) Certification Exam is now available online. The syllabus lists key elements of knowledge in CMR. It represents a framework for the development of training curricula and provides expected knowledge-based learning outcomes to the CMR trainees, in particular those intending to demonstrate CMR knowledge in the European CMR exam, a core requirement in the CMR certification process.

**Keywords** 

Education • Cardiovascular magnetic resonance • Exam • Syllabus • Certification

#### Introduction

Cardiovascular magnetic resonance (CMR) has become an established imaging modality, which often provides unique information on a wide range of cardiovascular diseases. The CMR Section of the European Association of Cardiovascular Imaging (EACVI), the former European Society of Cardiology (ESC) Working Group on CMR, offers a process for certification of individuals in CMR. The aim of this process is to set a European standard for competency in the practice of CMR for the benefit of patients undergoing CMR studies. Competency requires knowledge, skills, and an appropriate

professional attitude. CMR knowledge is tested in the European CMR exam organized by the EACVI Section CMR and is coordinated and supervised by the European CMR Exam Board. The exam tests CMR knowledge, which is only one aspect of the competency requirements for CMR certification; skills and professional attitude are established using other means, such as CMR reporting logbooks and reference letters. To provide exam candidates with learning objectives and an expected knowledge base, a detailed CMR syllabus had been developed by the European CMR Exam Board and made available online in 2011. This CMR syllabus has now been updated and re-structured to align in form and scope with the

Echocardiography Core Syllabus of the EACVI (http://www.escardio.org/communities/EACVI/education/Pages/core-syllabus-echo.aspx).<sup>2</sup> This new EACVI Core Syllabus for European CMR Certification Exam is now available online (http://www.escardio.org/communities/EACVI/education/Pages/core-syllabus-cmr.aspx).

## Scope of the CMR Certification Exam syllabus

The purpose of the CMR Certification Exam syllabus in conjunction with the Echocardiography Core Syllabus and others that may follow is to encourage homogeneous cardiovascular imaging education and structured certification in Europe. <sup>1,3–5</sup> It provides a core knowledge summary for cardiology trainees, cardiologists, and professionals with an interest in CMR. The syllabus can serve as a guide for developing educational material and educational course content. Trainees may use the CMR syllabus to guide their preparation for knowledge-based assessments (in particular the European CMR Exam). Levels 2 and 3 CMR-certified practitioners might identify topics in which they would benefit from Continuous Medical Education (CME). Harmonized imaging education and assessment facilitate the delivery of standardized high-quality cardiac imaging, which in turn leads to improved diagnosis and management of cardiovascular disease across Europe.

## Use of the core syllabus within the EACVI activities

The role of the EACVI is to provide guidance, to facilitate harmonization of cardiac imaging practice standards, to define knowledge requirements, and to promote education. The EACVI is a world leader in education, providing high-quality educational opportunities through congresses, teaching courses, journals, website, books, recommendations and position papers, slide-sets, and other tangible educational materials. The EACVI CMR Certification Exam Syllabus will be used to standardize the content of these educational opportunities and of the educational activities organized by the EACVI in collaboration with National Societies and National Working Groups. The EACVI values the contribution of National Societies and Working Groups in educational activities. The new EACVI

CMR Certification Exam Syllabus will be used to update the ESC Core Syllabus and Core Curriculum in clinical cardiology. Furthermore, the document will represent the foundation of collaboration between the EACVI Education Committee, the EACVI Board, and the ESC Education Committee in awarding adequate CME credits to educational activities run throughout Europe.

### **Perspectives**

The syllabus will become the reference outline for all teaching materials and courses in CMR throughout Europe. It will represent the foundation of the new European electronic education platform (ESCel). The EACVI will ensure that the syllabus will be kept updated, ensuring advances in the field of CMR are incorporated. The CMR Certification Exam Syllabus is aligned with the Echocardiography Core Syllabus of the EACVI. It is expected that the other cardiac imaging modalities will follow suit in due course. The aim is to create a complete Cardiovascular Imaging Core Syllabus.

Conflict of interest: None declared.

#### References

- Plein S, Schulz-Menger J, Almeida A, Mahrholdt H, Rademakers F, Pennell D et al. on behalf of the Working Group on Cardiovascular Magnetic Resonance of the European Society of Cardiology. Training and accreditation in cardiovascular magnetic resonance in Europe: a position statement of the working group on cardiovascular magnetic resonance of the European Society of Cardiology. Eur Heart J 2011;32: 793–8.
- Cosyns B, Garbi M, Separovic J, Pasquet A, Lancellotti P. Education Committee of the European Association of Cardiovascular Imaging Association (EACVI). Update of the echocardiography core syllabus of the European Association of Cardiovascular Imaging (EACVI). Eur Heart | Cardiovasc Imaging 2013;14:837–9.
- Lopez-Sendon J, Mills P, Weber H, Michels R, Di Mario C, Filippatos GS et al. Recommendations on sub-speciality accreditation in cardiology. The Coordination Task Force on Sub-speciality Accreditation of the European Board for the Speciality of Cardiology. Eur Heart J 2007;28:2163–71.
- Fox KF, Popescu BA, Janiszewski S, Nihoyannopoulos P, Fraser AG, Pinto FJ. European Association of Echocardiography Accreditation Assessment Committee. Report on the European Association of Echocardiography accreditations in echocardiography: December 2003-September 2006. Eur J Echocardiogr 2007;8:74–9.
- Popescu BA, Stefanidis A, Nihoyannopoulos P, Fox KF, Ray S, Cardim N et al. Updated standards and processes for accreditation of echocardiographic laboratories from The European Association of Cardiovascular Imaging. Eur Heart J Cardiovasc Imaging 2014;15:717–727.

