ESC Core Curriculum for the General Cardiologist (2013)

European Society of Cardiology
Committee for Education

Thierry Gillebert
Ghent University Belgium

UNIVERSITEIT GENT

EUROPEAN SOCIETY OF CARDIOLOGY®

European Heart Journal (2013) **34**, 2381–2411
doi:10.1093/eurheartj/eht234

CURRENT OPINION

ESC Core Curriculum for the General Cardiologist (2013)

European Society of Cardiology

Committee for Education

Authors/Task Force Members: Thierry C. Gillebert* (chair) (Belgium), Nicholas Brooks (United Kingdom), Ricardo Fontes-Carvalho (Portugal), Zlatko Fras (Slovenia), Pascal Gueret (France) Jose Lopez-Sendon, (Spain), Maria Jesus Salvador (Spain), Renee B. A. van den Brink (Netherlands), Otto A. Smiseth (Norway)

Observer on behalf of the UEMS (Cardiology Section): Reinhard Griebenow, (Germany)

Review Coordinators: Peter Kearney (Ireland), Alec Vahanian (France)

Contributors and reviewers: J. Bauersachs, J. Bax, H. Burri, A.L.P. Caforio, F. Calvo, P. Charron, G. Ertl, F. Flachskampf, P. Giannuzzi, S. Gibbs, L. Gonçalves, J.R. González-Juanatey, J. Hall, D. Herpin, G. Iaccarino, B. Iung, A. Kitsiou, P. Lancellotti, T. McDonough, J.J. Monsuez, I.J. Nuñez, S. Plein, A. Porta-Sánchez, S. Priori, S. Price, V. Regitz-Zagrosek, Z. Reiner, L.M. Ruilope, J.P. Schmid, P. A. Sirnes, M. Sousa-Ouva, J. Stępińska, C. Szymanski, D. Taggart, M. Tendera, L. Tokgözoğlu , P. Trindade, K. Zeppenfeld

ESC staff: L. Joubert, C. Carrera

What is the Core Curriculum?

- **Optimal standard for the general cardiologist**
  - Training
  - Continuous medical education
- **Backbone of the ESC educational offering**

Why a revision in 2013?

- **We are dealing with older patients with more comorbidities**
  - Focus on global integrated care rather than solving a well-defined cardiovascular problem
- **We have witnessed progress in technology and treatments**
  - E.g. EP, percutaneous implantation of valves, stent design
  - E.g. new anticoagulants and new antiplatelet drugs in ACS
- **We work increasingly in multidisciplinary teams (Heart Team)**
  - And in evolving hospital structure with increasing management pressure

Core Curriculum: optimal standard

- There are quite different approaches to training across Europe and there is a danger that you end up with a lowest common denominator
- The core curriculum aims for what is optimal
- It means that not every training system will be able to adopt the full curriculum, or may not want to, in total
- But the aim is to try to harmonise and optimise

(Peter Kearney)

Core Curriculum: optimal standard

- The Core Curriculum is not written in stone because we are perfectly aware that throughout Europe there are differences in training and means
- The ESC proposes a standard
- The national societies can use it as a benchmark when they meet their politicians and authorities

(Alec Vahanian)

Structure of the manuscript

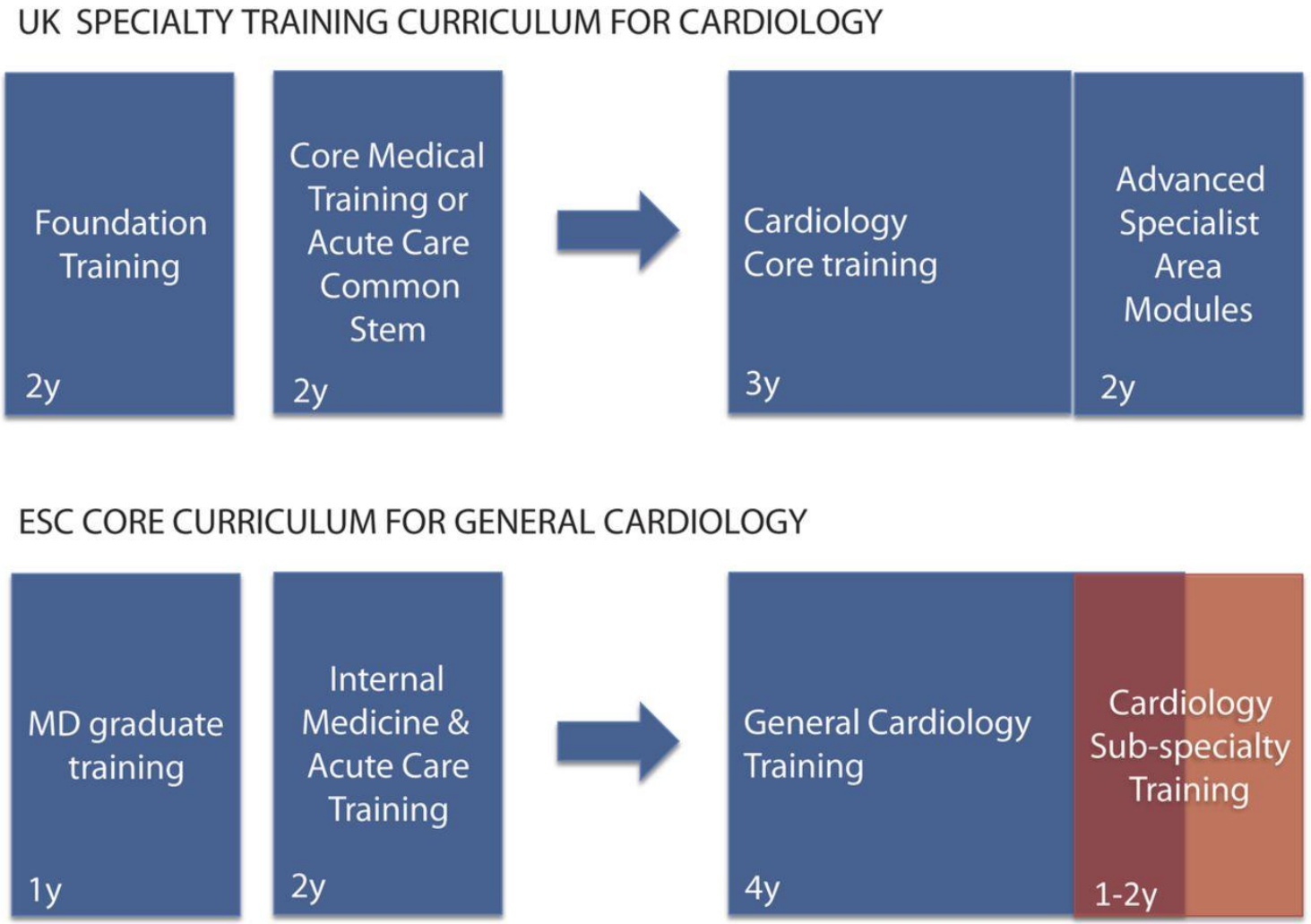
1. **Global aspects of the core curriculum:**
   - Clinical field of the general cardiologist
     - Relationship with sub-specialists and with other disciplines
   - General aspects of training
   - Requirements for training institutions & trainers
   - Learning objectives
2. **Specific aspects of the core curriculum**
   - 28 sections (2.1. till 2.28)
   - Numbering was kept almost unchanged for guaranteeing continuity with previous versions

General aspects of training

The recommended duration of postgraduate education is a minimum of six years

- two years of common trunk (internal medicine and/or acute care)
- a minimum of four years **full-time and exclusive** training in cardiology

Training in cardiology in the UK and the ESC



Gillebert T C et al. Eur Heart J 2013;eurheartj.eht177

Requirements

- **For training institutions**
  The ideal situation is a training programme within a comprehensive heart centre where all aspects of cardiovascular disease are grouped (Heart Team)

- **For trainers**
  The total number of trainees should not exceed the number of trainers (full time equivalent)

Learning objectives

Technique	Description of competence	Level of competence
ECG	Competent in all aspects	Level III
Long-term ECG methodologies	Competent in all aspects	Level III
Exercise ECG testing	Competent in all aspects	Level III
Cardiopulmonary exercise testing	Able to perform and interpret independently in routine cases	Level II
Ambulatory BP monitoring	Competent in all aspects	Level III
Trans-thoracic echocardiography	Competent in all aspects	Level III
Vascular ultrasound	Able to perform and interpret independently in routine cases	Level II
Trans-oesophageal echocardiography	Able to perform and interpret independently in routine cases	Level II
Stress-echocardiography	Some practical experience but not as an independent operator	Level II
Nuclear studies	Able to interpret the data independently	Level II
Cardiac X-ray computed tomography	Able to interpret the data independently	Level II
Cardiovascular magnetic resonance	Able to interpret the data independently	Level II[a]
Venous and arterial puncture	Competent in all aspects	Level III
Invasive haemodynamics including right heart and pulmonary artery catheterization	Competent in all aspects	Level III
Coronary and LV angiography	Competent in all aspects	Level III
Percutaneous intervention	Having assisted at procedures	Level I
Cardiac surgery	Having assisted at procedures	Level I
Temporary pacemaker implantation	Competent in all aspects	Level III
Pacemaker programming	Competent in all aspects	Level III
ICD/CRT programming	Some practical experience	Level II
Pacemaker implantation	Practical experience in uncomplicated cases	Level II
ICD implantation	Having participated at procedures	Level I
CRT implantation	Having participated at procedures	Level I
Electrophysiological studies	Some practical experience; able to understand electrophysiological tracings	Level II
Electrophysiological interventions	Having participated at procedures	Level I
Electrical cardioversion	Competent in all aspects	Level III
Pericardiocentesis	Competent in all aspects	Level III

Focus of the document

1. Clinical and communication skills
   Rather than technical skills

2. Empathy for the patient and their relatives
   see next slide

3. Team work (Heart Team)
   the cardiologist becomes a team player and is no longer the isolated, and would be superior, clinician-scientist

4. Knowledge of the mechanisms of disease
   Pathophysiology as the basis of (continuous) education

Empathy for patient and relatives

- **To manage the cardiologist's relationship with the patient and relatives with empathy and respect for their socioeconomic, ethnical, cultural, and religious background**
- **Skillful communication**
  - to relieve uncertainty
  - to support the patient who is facing a poor prognosis or experiences complications or an unsuccessful intervention
  - to sustain adherence with lifestyle and pharmacological therapy

Part 2: The Core Curriculum per Topic

2.1 History taking and clinical examination

Objectives

History taking

To establish a relationship with the patient based on empathy and trust and to obtain a clinical history relevant to cardiovascular disorders, including:

- the patient's spontaneous account of symptoms;
- questions from the cardiologist focused on the presence or absence of possible cardiovascular symptoms;
- the past medical history;
- cardiovascular risk factors and reversible causes for cardiovascular diseases;
- symptoms of any co-morbidities;
- family history (cardiovascular and other diseases);
- current and past drug therapy;
- social history (including patient's socio-economic situation, professional, educational, and religious background).

Clinical examination

It is emphasized that the trainee should complement the subjective findings from the clinical history with the objective findings on clinical examination of the cardiovascular system, to establish a diagnosis and management plan:

- to perform a general examination of the patient searching for manifestations of cardiovascular disease and/or evidence of co-existing illness;
- to examine the heart;
- to examine the vascular arterial and venous systems.

Knowledge

History taking

- Range and meaning of words used by patients to describe their symptoms;
- Several symptoms of cardiovascular disease and features that differentiate them from non-cardiovascular conditions;
- Cardiovascular risk factors derived from the patient's history and the importance of global cardiovascular risk assessment;
- Names, pharmacology, and side-effects of the drugs prescribed to cardiovascular patients;
- Clinical manifestations and treatment of the co-morbidities often associated with cardiovascular disease;
- Clinical manifestations and treatment of inherited cardiovascular diseases and the principles of family counselling.

Clinical examination

- Blood pressure (BP) measurement: principles and limitations of its diagnostic and prognostic values, keeping in mind the high variability of clinic BP;
- Characteristics of the normal and abnormal arterial pulse, heart rate, and rhythm;
- The normal and abnormal precordial impulse;
- Heart auscultation in relation to the cardiac cycle in health and disease;
- Right atrial pressure (jugular venous pressure);
- Palpation and auscultation of arteries. Significance of abnormal arterial pulses and vascular bruits at various sites;
- Ankle–brachial index (ABI) as an indication of advanced peripheral arterial disease;
- The venous system;
- Clinical signs of under-perfusion and fluid retention;
- Features on general examination caused by cardiovascular disease (lungs, liver, skin, and limbs).

Skills

History taking

The ability to:

- analyse the information obtained from a patient's history and integrate it with the clinical examination, in order to develop an overall assessment and to establish a diagnostic and therapeutic plan;
- clarify important clinical information;
- evaluate cardiovascular risk using established risk scores.

Clinical examination

The ability to:

- make and record accurate observations about the clinical state of the patient, with particular emphasis on the cardiovascular system in health and disease;
- perform a thorough clinical (and basic neurological) examination; special emphasis on palpation and auscultation of heart, lungs, and arteries, inspection of venous pulse, evaluation of liver enlargement, ascites, and oedema;
- record the history and findings on clinical examination in a structured electronic or written file.

Behaviours and attitudes

- Consideration for the patient in order to allow sufficient time to describe symptoms in their own words;
- Willingness to document past-history from general practitioners
- Sensitivity in asking direct and open-ended questions;
- Willingness to contribute in collaboration with the general practitioners, to the global rather than solely the cardiovascular care of the patient;
- Empathy and respect for patients' socio-economic, ethnical, cultural, and religious background;
- Examination of patients with due regard for their dignity.

2.2 The electrocardiogram

Objectives

To select, perform, and interpret each of the non-invasive ECG techniques:

- standard 12-lead ECG;
- long-term ambulatory ECG;
- exercise ECG testing;
- cardio-pulmonary exercise testing (CPX)[10].

New chapters (I)

- **Non-invasive imaging is subdivided in 5 sections on imaging in general, echo, CMR, X-ray-CT and RN**
  - "The new standard is that cardiologists will be trained to perform comprehensive imaging and not just echocardiography"

    (Otto Smiseth)

- **Cardiovascular prevention**
  - Cardiovascular risk factors
  - Hypertension

2.3 Non-invasive imaging

2.3.1 Non-invasive imaging in general

Objectives

- To select the appropriate imaging modalities according to the clinical condition:
  - non-invasive imaging in general;
  - echocardiography of heart and vessels;[13]
  - cardiac magnetic resonance (CMR);[17]
  - cardiac X-ray computed tomography (CT);
  - nuclear techniques.
- To interpret and integrate the results into individual patient care;
- To perform most TTE and routine TOE echocardiographic examinations independently.

New chapters (II)

- **Oncology and the heart**
  - Replaces the chapter "Tumours of the heart"
  - Includes CV of tumours, chemotherapy, rediotherapy
  - Focuses on empathic and supportive approach of vulnerable patients

- **Physical activity**
  - Sports Cardiology (primary prevention)
  - Cardiac Rehabilitation (secondary prevention)

2.12 Oncology and the heart

Objectives[26,27]

- To develop knowledge of the manifestations of primary, benign and malignant, and metastatic cardiac tumours;
- To evaluate cardiovascular effects of malignancies and cancer therapies (chemotherapy, radiotherapy, and cancer surgery);
- To participate in the management of patients with tumours involving the heart and with cardiovascular complications associated with the treatment of non-cardiac malignancies.

New chapters (III)

- **Acute cardiovascular care**
  - Distinction with intensive care cardiology
  - Lung diseases, fluid and electrolytes, renal diseases, metabolism, sedation, pain management, infectious diseases
- **The cardiac consult**
  - Peri-operative consult
  - Patient with neurological symptoms
  - Patient with diabetes, CKD, lung diseases and elderly patients

2.27 Acute cardiovascular care

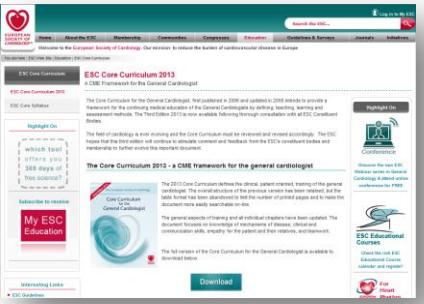
Objectives

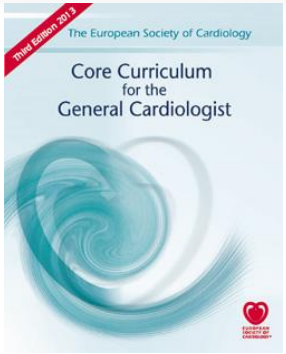
- To perform specialist assessment and management of patients with cardiac emergencies;
- To be able to carry out basic (BLS) and ACLS. See Chapter 2.23;
- To collaborate with cardiac intensive care unit (ICU) cardiologists and intensive care physicians in the assessment and management of cardiovascular diseases in patients in the ICU.

Lessons learned

- *This work is more about listening and about finding the way to express what we all feel*
- *In most circumstances there was an almost unanimous agreement on what is adequate for the future training of cardiologists*
- *There however is a field of tension between what is considered adequate for training and how we might preserve or enhance optimal training programmes in individual countries*

✓ ESC Core Curriculum 2013 released!





European Heart Journal

- 11 July 2013 - Online (Full text)
  doi: 10.1093/eurheartj/eht234.

- 7 August 2013 - Paper version (Full text)
  Eur Heart J. 2013;34:2381-411.
  - Editor's choice
  - CardioPulse contribution
    EurHeart J 2013; 34, 2331–2336.
    doi:10.1093/eurheartj/eht239

ESC

- Online: ESC Education website
  http://www.escardio.org/education/coresyllabus/Pages/core-curriculum.aspx
- Paper version