

Entrustable professional activities: Was sie können, was sie nicht können?

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Drivers to Change

Since 2013, Cardiology has changed:

- Increasing demands on knowledge and technical skills (interventions)
- Increasing relevance of research and its impact on clinical practice
- Increasing expectations on competence assessment
- Involvement of patients (shared decision making)

→ Focus on skills

→ Focus on assessment of competences in a clinical context

→ Involvement of trainees

→ Involvement of patients

ESC Core Curriculum for the Cardiologist

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ESC Core Curriculum 2020 and UEMS ETR

The UEMS ETR is integrated in the core curriculum

→ Joint document of UEMS and ESC



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EUROPEAN UNION OF MEDICAL SPECIALISTS

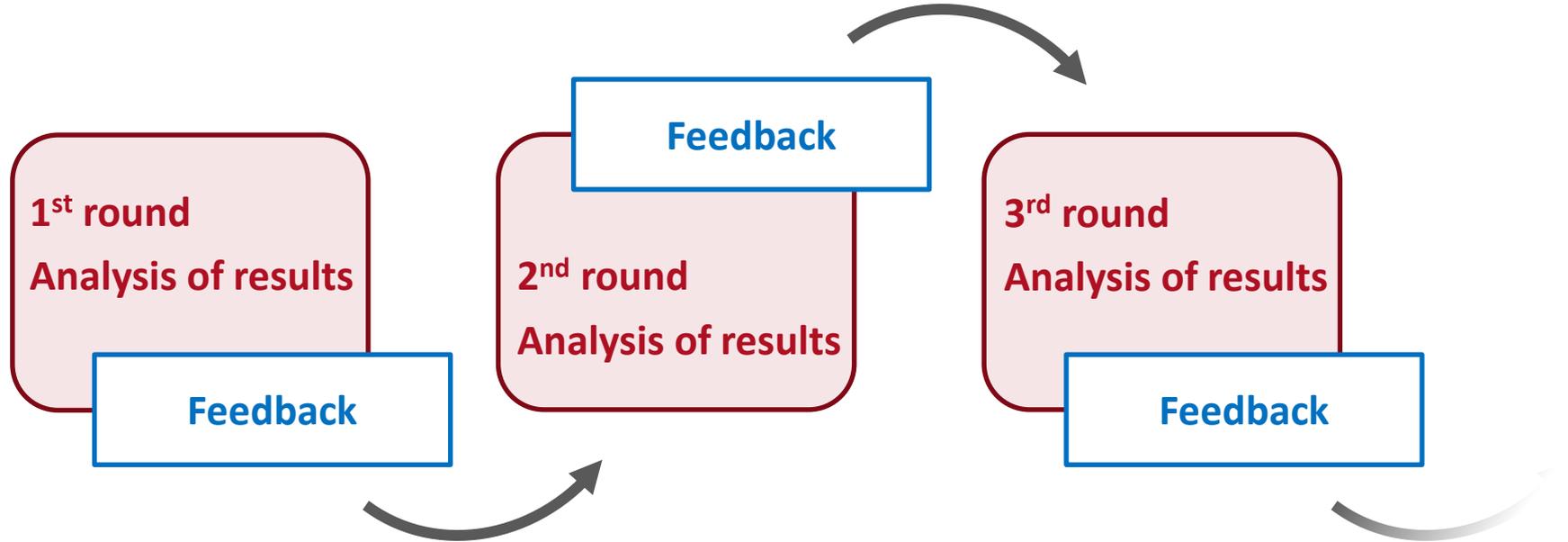
ESC Core Curriculum Task Force

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ESC Core Curriculum Task Force

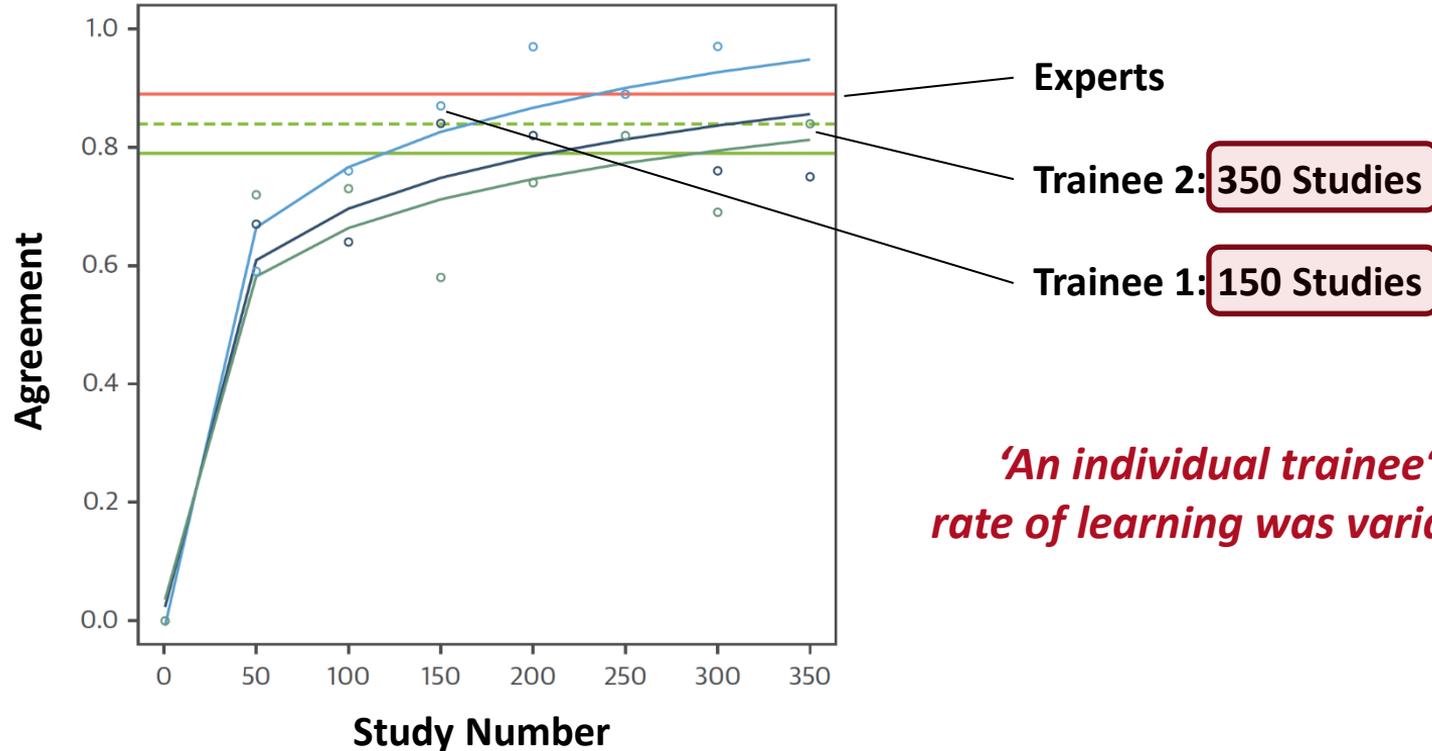
Last name	First name	Country	Stakeholder	Position
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Methodology: Delphi Rounds



Individuals and Learning

Abnormal Myocardial Perfusion Imaging



*'An individual trainee's
rate of learning was variable'*

*During training of an individual
the trainer develops an increasing degree of trust
in the trainee's competence*

*This process is often subconscious
→ It should be formalized and applied for training*

Entrustable Professional Activities (EPAs)

Entrustable Professional Activity (EPA)

Title

Description

CanMEDS Roles

Knowledge

Skills

Attitudes

Assessment Tools

Expected Level

- EPA = a unit of professional practice the trainee can execute in an independent manner at some stage of training
- EPAs enable assessment of clinically meaningful units of competence (e.g. ‘assess a patient with chest pain’)
- To complete an EPA successfully means that the trainer has developed trust in the trainee

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Expected Level

Our rationale for use of EPAs:

to generate the **necessary flexibility** for guiding and assessing trainees with **different abilities** and training needs

to promote a **holistic type of assessment** in the clinical setting focussed on the **clinical competence** of the trainee

Professional Competence

Cognitive

- Core knowledge
- Basic communication skills
- Information management
- Applying knowledge to real-world situations
- Using tacit knowledge and personal experience
- Abstract problem-solving
- Self-directed acquisition of new knowledge
- Recognizing gaps in knowledge
- Generating questions
- Using resources (eg, published evidence, colleagues)
- Learning from experience

Technical

- Physical examination skills
- Surgical/procedural skills

Integrative

- Incorporating scientific, clinical, and humanistic judgment
- Using clinical reasoning strategies appropriately (hypothetico-deductive, pattern-recognition, elaborated knowledge)
- Linking basic and clinical knowledge across disciplines
- Managing uncertainty

Context

- Clinical setting
- Use of time

Relationship

- Communication skills
- Handling conflict
- Teamwork
- Teaching others (eg, patients, students, and colleagues)

Affective/Moral

- Tolerance of ambiguity and anxiety
- Emotional intelligence
- Respect for patients
- Responsiveness to patients and society
- Caring

Habits of Mind

- Observations of one's own thinking, emotions, and techniques
- Attentiveness
- Critical curiosity
- Recognition of and response to cognitive and emotional biases
- Willingness to acknowledge and correct errors

Numbers Versus Competence Levels

- **Training using numbers:**
‘We gave him/her a fair chance, but he/she failed, so sorry’
→ Problem is shifted onto the patients

- **Training using EPAs:**
‘We did our best, but we trust him/her to work with distant supervision only, and he/she will need some more training’
→ Problem is solved before patients are concerned

Numbers versus Competence Levels

EPA-System	System of Numbers of procedures and investigations
<p>Strengths</p> <ul style="list-style-type: none">- EPAs can be overseen, assessed, monitored, documented, and certified- easy, formative, and repeated assessment during the training period- multisource assessment- aspects of assessment are knowledge, skills and attitudes- a completed EPA documents the ability of a trainee to safely, effectively, and independently perform the professional activity- Tools for assessment of each professional activity are defined- consistent to CanMEDS Physician Competency Framework- EPAs provide a framework to extend the training period until the trainee can be trusted- EPAs can be used equally for continuous medical education (CME)	<p>Strengths</p> <ul style="list-style-type: none">- easy to count- no subjective component- documentation requires less time
<p>Weaknesses</p> <ul style="list-style-type: none">- Assessment and documentation require more time	<p>Weaknesses</p> <ul style="list-style-type: none">- Knowledge, Skills & Attitudes are not assessed or documented- Trainer has no possibility to attest level of independence and quality- Quality of work is not evaluated/considered- False sense of security

Chapter 1

The Cardiologist in the Wider Context

Chapter 2

Imaging

Chapter 3

Coronary
Artery
Disease

Chapter 4

Valvular
Heart
Disease

Chapter 5

Rhythm
Disorders

Chapter 6

Heart
Failure

Chapter 7

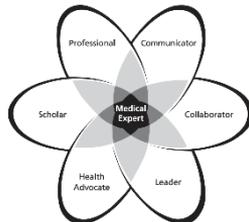
Acute
Cardiac
Care

Chapter 8

Prevention
Rehabili-
tation
Sports

Chapter 9

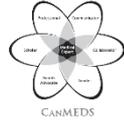
Cardiac
Patients in
Additional
Settings



CANMEDS

CanMEDS Physician Competency Framework Roles

Professional Leader
Communicator Health Advocate
Collaborator Scholar



CanMEDS Physician Competency Framework Roles

Role	Description/ competencies	Key competencies	Examples of possible assessment methods	Examples of possible teaching methods
1.4. Leader	As leaders, cardiologists engage with others to contribute to a vision of a high-quality healthcare system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.	<ol style="list-style-type: none">(1) Contribute to the improvement of health-care delivery in teams, organizations, and systems(2) Engage in the stewardship of healthcare resources(3) Demonstrate leadership in professional practice(4) Manage career planning, finances, and human health resources in a practice	<ul style="list-style-type: none">• Multi-source feedback• Direct observation - WBA	<ul style="list-style-type: none">• Lecture or large group session• Small group teaching• M&M-Rounds• Self-directed learning• Quality improvement courses• Leadership in clinical practice courses

ESC Core Curriculum 2020

1. Chapter 1: The cardiologist in the wider context	11	5. Chapter 5: Rhythm disorders	38	7. Chapter 7: Acute Cardiovascular Care	61
1.1. Preamble	11	5.1. Manage a patient with palpitations	38	7.1. Manage a patient with haemodynamic instability	61
1.2. CanMEDS roles	12	5.2. Manage a patient with transient loss of consciousness	39	7.2. Manage a patient post-cardiac arrest	62
2. Chapter 2: Imaging	15	5.3. Manage a patient with atrial fibrillation	40	7.3. Manage a critically ill cardiac patient	64
2.1. Assess a patient using one or multiple imaging modalities	15	5.4. Manage a patient with atrial flutter	41	7.4. Manage a patient after a percutaneous cardiovascular procedure	65
2.2. Assess a patient using echocardiography	16	5.5. Manage a patient with supraventricular tachycardia	42	7.5. Manage a patient after cardiac surgery	66
2.3. Assess a patient using cardiac magnetic resonance	17	5.6. Manage a patient with ventricular arrhythmia	43	7.6. Manage end-of-life care in a critically ill cardiac patient	67
2.4. Assess a patient using cardiac computed tomography	18	5.7. Manage a patient with bradycardia	44	8. Chapter 8: Prevention, rehabilitation, sports	68
2.5. Assess a patient using nuclear techniques	19	5.8. Manage a patient with a cardiac ion channel dysfunction	45	8.1. Manage cardiovascular aspects in an athlete (Sport Cardiology)	68
3. Chapter 3: Coronary artery disease	20	5.9. Manage a patient with a pacemaker	46	8.2. Manage a patient with arterial hypertension	69
3.1. Manage a patient with symptoms suggestive of coronary artery disease	20	5.10. Manage a patient with an implantable cardioverter defibrillator	47	8.3. Manage a patient with dyslipidaemia	70
3.2. Manage a patient with acute coronary syndrome	21	5.11. Manage a patient with a cardiac resynchronization therapy device	48	8.4. Manage cardiovascular aspects in a diabetic patient	71
3.3. Manage a patient with chronic coronary syndrome	22	6. Chapter 6: Heart Failure	49	8.5. Manage an individual in primary prevention	73
3.4. Assess a patient using coronary angiography	23	6.1. Manage a patient with symptoms and signs of heart failure	49	8.6. Manage a cardiac patient in secondary prevention	74
4. Chapter 4: Valvular heart disease	24	6.2. Manage a patient with heart failure with reduced ejection fraction	50	8.7. Prescribe a prevention and rehabilitation programme for a cardiovascular patient	75
4.1. Manage a patient with aortic regurgitation	24	6.3. Manage a patient with heart failure with preserved ejection fraction	52	9. Chapter 9: Cardiac patients in other settings	76
4.2. Manage a patient with aortic stenosis	25	6.4. Manage a patient with acute heart failure	53	9.1. Manage a patient with aortic disease	76
4.3. Manage a patient with mitral regurgitation	26	6.5. Manage a patient with cardiomyopathy	54	9.2. Manage a patient with trauma to the aorta or the heart	77
4.4. Manage a patient with mitral stenosis	28	6.6. Manage a patient with pericardial disease	56	9.3. Manage a patient with peripheral artery disease	78
4.5. Manage a patient with tricuspid regurgitation	29	6.7. Manage a patient with right heart dysfunction	57	9.4. Manage a patient with thromboembolic venous disease	79
4.6. Manage a patient with tricuspid stenosis	30	6.8. Manage a patient with a cardiac tumour	58	9.5. Manage a patient with pulmonary thromboembolism	80
4.7. Manage a patient with pulmonary regurgitation	32	6.9. Manage cardiac dysfunction in oncology patients	59	9.6. Manage a patient with pulmonary hypertension	81
4.8. Manage a patient with pulmonary stenosis	33	7. Chapter 7: Acute Cardiovascular Care	61	9.7. Manage a patient with adult congenital heart disease	82
4.9. Manage a patient with multivalvular disease	34	7.1. Manage a patient with haemodynamic instability	61	9.8. Manage a pregnant patient with cardiac symptoms or disease	83
4.10. Manage a patient with a prosthetic valve	35	7.2. Manage a patient post-cardiac arrest	62	9.9. Perform a cardiological consultation	85
4.11. Manage a patient with endocarditis	36	7.3. Manage a critically ill cardiac patient	64		
		7.4. Manage a patient after a percutaneous cardiovascular procedure	65		
		7.5. Manage a patient after cardiac surgery	66		
		7.6. Manage end-of-life care in a critically ill cardiac patient	67		

ESC Core Curriculum 2020

Manage a patient with aortic stenosis

Description

Timeframe: from diagnosis of aortic stenosis (AS) until referral for surgical/interventional therapy

Setting: outpatient setting, inpatient setting, emergency department

Including:

initial assessment based on clinical history and physical examination

identification of causes and differential diagnosis

performance and interpretation of basic diagnostic modalities

interpretation of additional diagnostic modalities

medical therapy

Excluding: performing interventional or surgical therapy

CanMEDS roles

- Medical expert
- Communicator
- Collaborator
- Leader
- Professional

Knowledge

- List the causes of AS
- Describe the haemodynamics of AS
- Describe the pathophysiology of AS and its impact on the heart and circulation
- Describe the symptoms and clinical signs of AS
- Outline the natural history and prognosis of AS
- Describe the values and limitations of diagnostic modalities; in particular echocardiography
- Quantify the severity of AS and its effect on cardiac function
- Plan the follow-up during conservative management of a patient with AS
- Explain the current guidance on endocarditis prophylaxis
- Discuss the indications for aortic valve replacement, with or without replacement of the ascending aorta
- Describe the indications, benefits, and risks of conservative, interventional, and surgical therapy
- Discuss the impact of aortic root dilatation, concomitant coronary artery disease, and other co-morbidities on the management and outcome of AS

Skills

- Take a relevant history and perform an appropriate physical examination
- Select appropriate diagnostic modalities
- Perform and interpret the following diagnostic modalities:
 - ECG
 - Exercise ECG
 - Cardiopulmonary exercise testing
 - Transthoracic echocardiography
- Interpret the following diagnostic modalities:
 - Chest X-ray
 - Trans-oesophageal echocardiography
 - Stress echocardiography
 - Cardiac catheterization
 - Coronary angiography
 - Cardiac CT
 - Cardiac MR
- Decide on the strategy and frequency of follow-up
- Identify the appropriate timing for interventional or surgical therapy
- Optimize patient condition in preparation of interventional or surgical therapy
- Assess the benefits and risks of different therapeutic approaches

Attitudes

- Allow time for careful evaluation of symptoms using, when appropriate, the results of exercise testing
- Limit investigations to those required for definitive diagnosis and planning for an intervention
- Educate the patient on the cause, and probable natural history of their AS
- Educate the patient on the necessity for regular follow-up
- Provide balanced, understandable, and appropriate information to the patient on benefits and risks of different therapeutic approaches
- Involve the patient in all decisions relating to their care
- Commit to work in a Heart Team involving imaging specialists, interventional cardiologists, cardiac surgeons, anaesthetists, and nurses

Assessment tools

- Direct observation/WBA (e.g. DOPS, Mini-CEX, fieldnotes)
- CbD (case-based discussion)/EbD (entrustment-based discussion)

Level of independence

- 5. Able to teach (no supervision)

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interpretation of additional diagnostic modalities

medical therapy

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Manage a patient with aortic stenosis

Skills

- Take a relevant history and perform an appropriate physical examination
- Select appropriate diagnostic modalities
- Perform and interpret the following diagnostic modalities:
 - ECG
 - Exercise ECG
 - Cardiopulmonary exercise testing

- Interpret the following diagnostic modalities:
 - Chest X-ray
 - Trans-oesophageal echocardiography
 - Stress echocardiography
 - Cardiac catheterization

.....

Manage a patient with aortic stenosis

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Entrustment Levels

Level 1: Trainee is able to observe

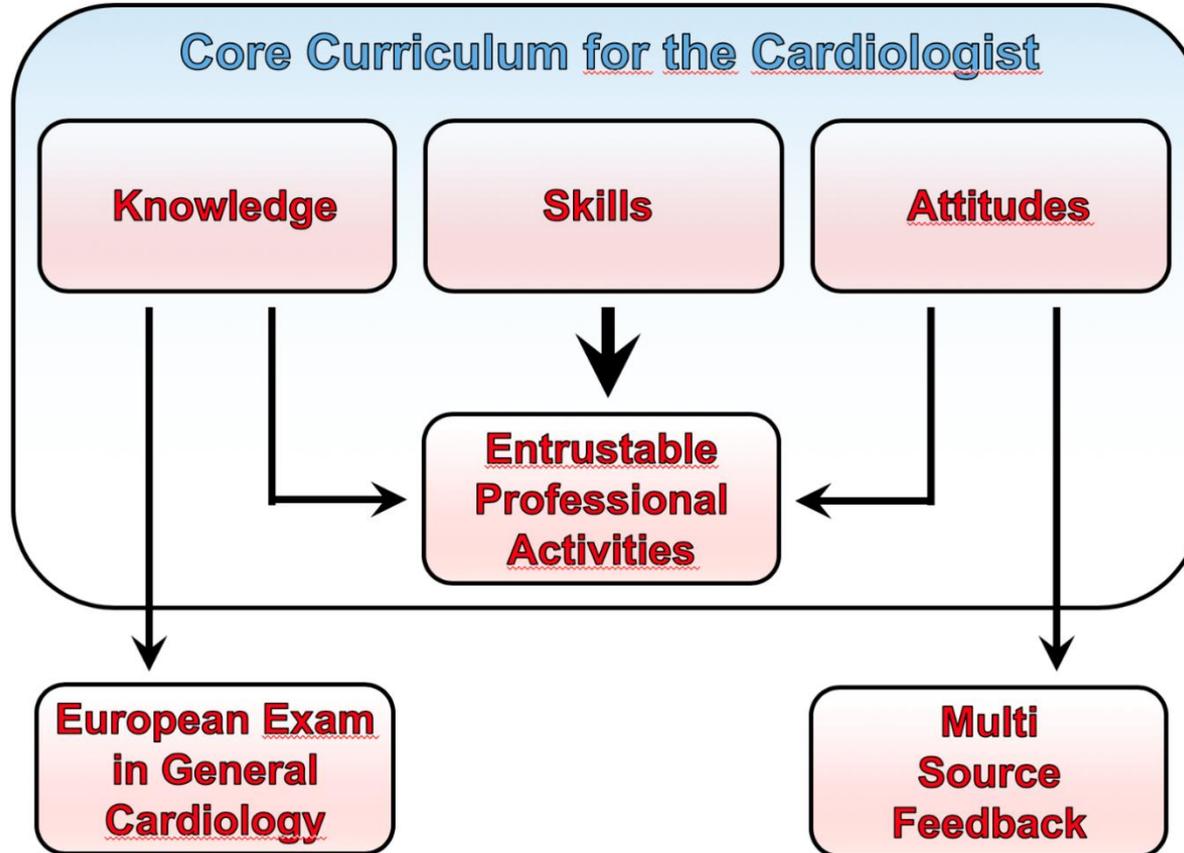
Level 2: Trainee is able to perform the activity under direct supervision
proactive, close supervision, supervisor in the room

Level 3: Trainee is able to perform the activity under indirect supervision
reactive, on-demand supervision, trainee has to ask for help, supervisor readily available, within minutes

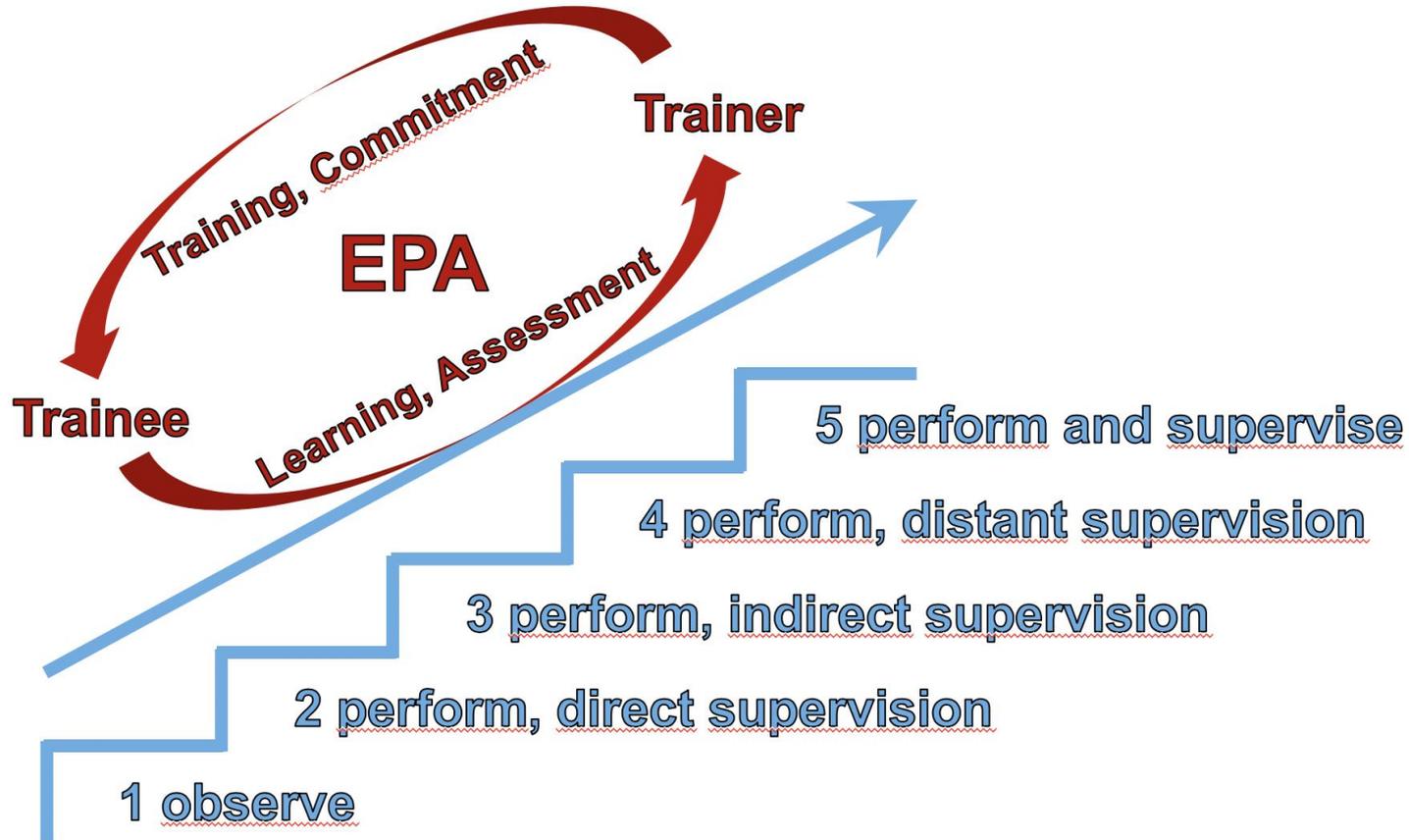
Level 4: Trainee is able to perform the activity under distant supervision
reactive supervision available remotely, e.g. within 20-30min, on the phone or post-hoc

Level 5: Trainee is able to supervise others in performing the activity

EPA and Assessment



EPAs and Trainer Trainee Interaction



EPAs for Training in Cardiology

For trainers

Do's

- Define the EPAs that are feasible and relevant for your setting; any clinical situation is an opportunity for an assessment
- Use the Knowledge/Skills/Attitudes section of the EPAs as a resource for specific feedback
- Integrate the assessment real time in your daily work
- When observing a trainee always look for knowledge and attitudes, not only skills
- Use your expert judgement to rate the level of the trainee's independence

Don'ts

- Don't think you are on your own; share challenges, tips, and tricks with peers
- Don't use the Knowledge/Skills/Attitudes section as a checklist
- Don't postpone the assessment
- Don't assess manual/technical skills only
- Don't worry about subjectivity

For trainees

Do's

- Integrate the assessment in the workflow
- Ask your trainer to rate the level of independence for every EPA you perform - and the reason for the level
- Ask all your trainers to rate you at several occasions
- Identify the relevant EPAs for each setting
- Use your EPA profile for driving your learning and completing your competence
- Use Knowledge/Skills/Attitudes section of the EPAs to guide you in your training

Don'ts

- Don't postpone assessments
- Don't only ask for ratings in EPAs you are already competent in
- Don't only ask for ratings from your favourite trainer

Potential Concerns Regarding EPAs

- **Trainers:**
 - Effort required for effectively developing trust in the trainees
 - More time necessary for assessing the trainees
 - **Mobile technology for rapid documentation of assessments**
- **Trainees:**
 - No numbers for documentation in log book
 - **Mobile technology for documentation of competence levels**
 - Even more dependent on goodwill of trainer due to repetitive assessments
 - **Organize assessments with various trainers**

EPA-based Assessment Using Mobile Technology

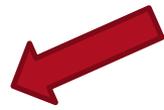
Mobile Application
4 Click Rating Process

Trainee2
Welcome back Beta.

→ New Assessment

My Profile

My Learning Goals My Statistics



EPA
Data
Point

Clinical Teaching Situation
Direct Observation

Back-end
Data Allocation to EPAs

Clinical Competency Committee (CCC)
and/or
Algorithm



Adjusted Teaching
And Supervision

Mobile Application
Individual EPA Profile

Profile

Bob Beta
trainee2@fromlabs.com

Rhythm disorders

Preoperative assessment/	Induction	Intraoperative Management	Emergency	Patient Transfer	Hand-over	Post-anesthesia care / acute	Airway management	Peripheral IV placement	Arterial line placement	Central venous line	Neuraxial nerve block	Period TTE	Drinking coffee
1	1	1	1	1	1	1	2	0	2	1	1	1	5
3	0	1	0	1	1	1	0	1	0	0	1	1	4

Schuwirth LWT and Van der Vleuten CPM.
„Programmatic Assessment: From Assessment of Learning to
Assessment for Learning“. *MedTeach* 33,6 (June 2011): 478–85.

Application of EPAs

- **Application #1:**

Training until sufficient competence for independent practice as cardiologist is reached

- **Application #2:**

Continuing medical education and professional development of the cardiologist after training has been completed

The best way to find out if you can trust somebody is to trust them.

(attr. E. Hemingway)

- **ESC Core Curriculum
for the Cardiologist**

- Trust in training

- Discover www.escardio.org/cc

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