



Nuclear Medicine and Radiology Combined Towards a new curriculum



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GRONINGEN



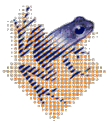
- 190.000 inhabitants
- capital of the Province with the same name
- University of Groningen
 - founded 1614
 - 25,000 students
- also: Technical University
 - 15,000 students





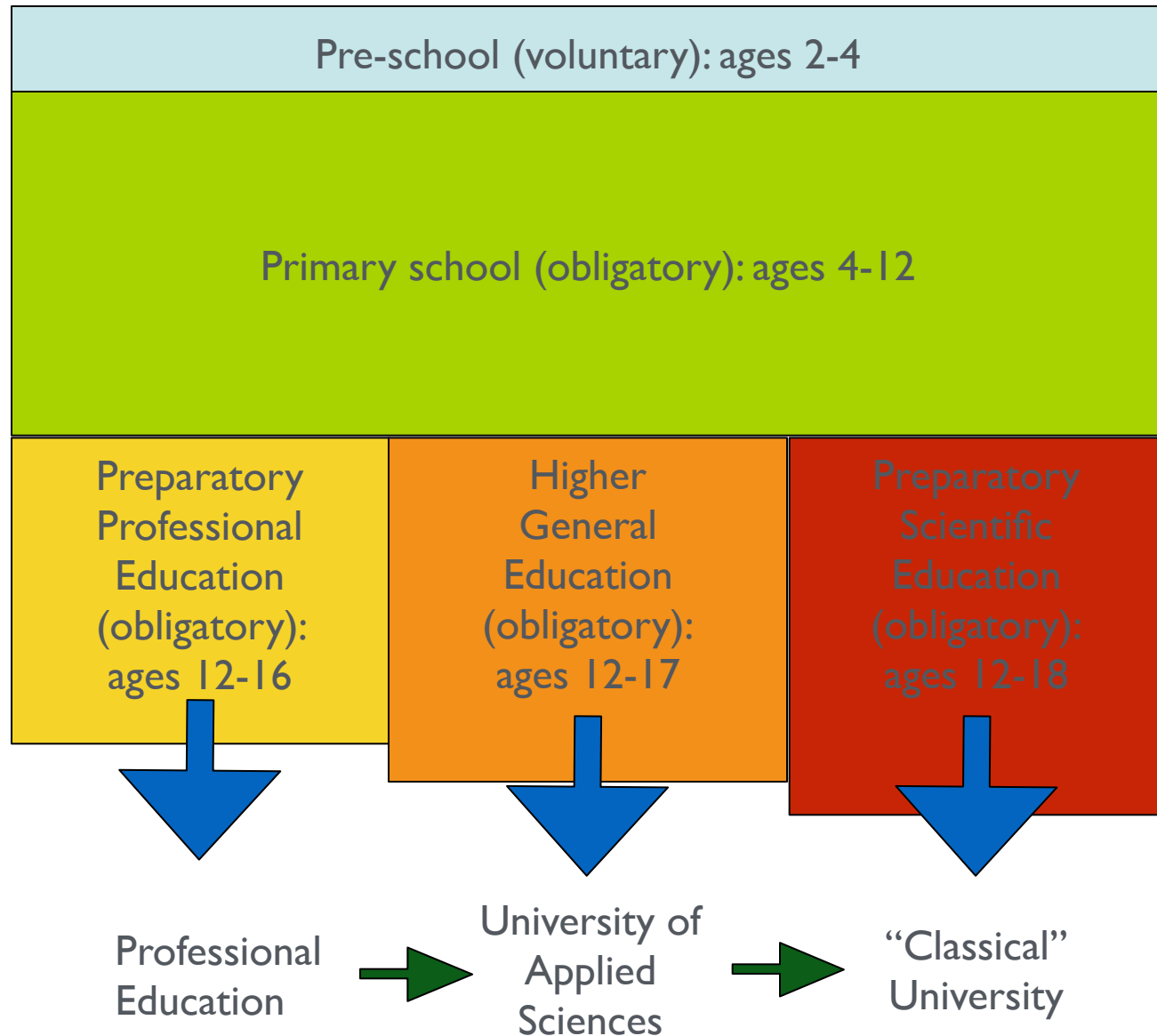
University Medical Center Groningen (UMCG)

- Founded 1798
- Healthy Ageing
- 1300 beds
- Lifelines
- ERIBA





The Dutch school system





Dutch “Classical” Universities

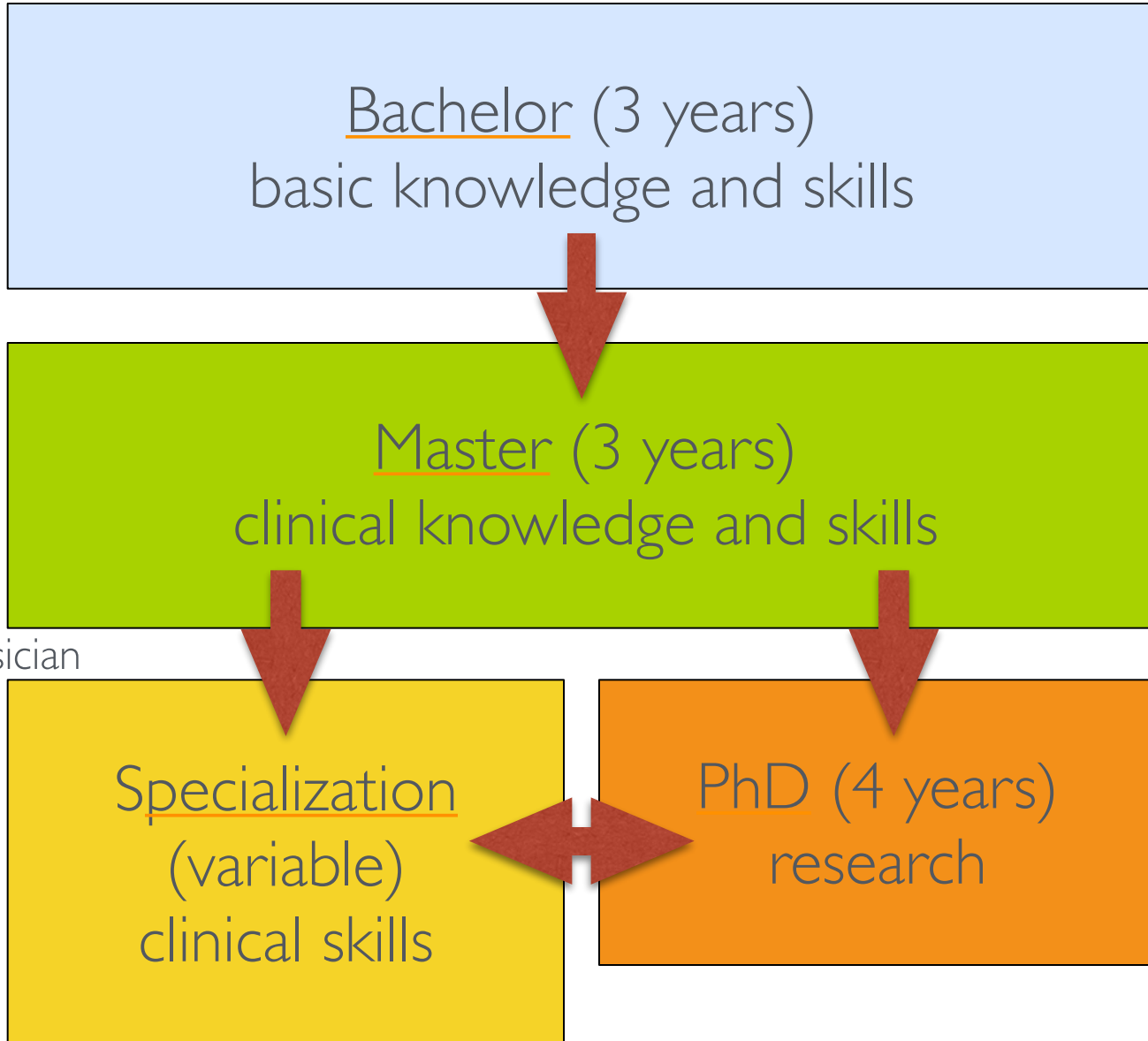




Bologna-declaration 1999

- formation of the European Higher Education Area
- nowadays 47 countries involved
- undergraduate/postgraduate/PhD-system made compulsory to all participants





“Basic” physician





Specialization Traineeships

Length is variable

- Surgery: 6 years
- Internal Medicine: 6 years
- Radiology: 5 years
- Nuclear Medicine: 5 years
- General Practitioner: 3 years
- a.m.o.

Because of budget cuts there is a tendency to reduce the number of years of a traineeship. Ideally the Government would like to see a maximum of 4 years

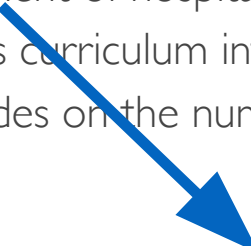




Specialization Traineeships

Players in the field

1. Scientific Society (Dutch SNM):
 - decides content of the curriculum
 - accreditation of hospitals as tuition institution
2. Royal Dutch Society of Medicine:
 - advises Government
 - checks the different curricula.
 - Quality controls
3. Government
 - payment of hospitals for the trainees
 - turns curriculum into law
 - decides on the number of trainees per annum per specialty

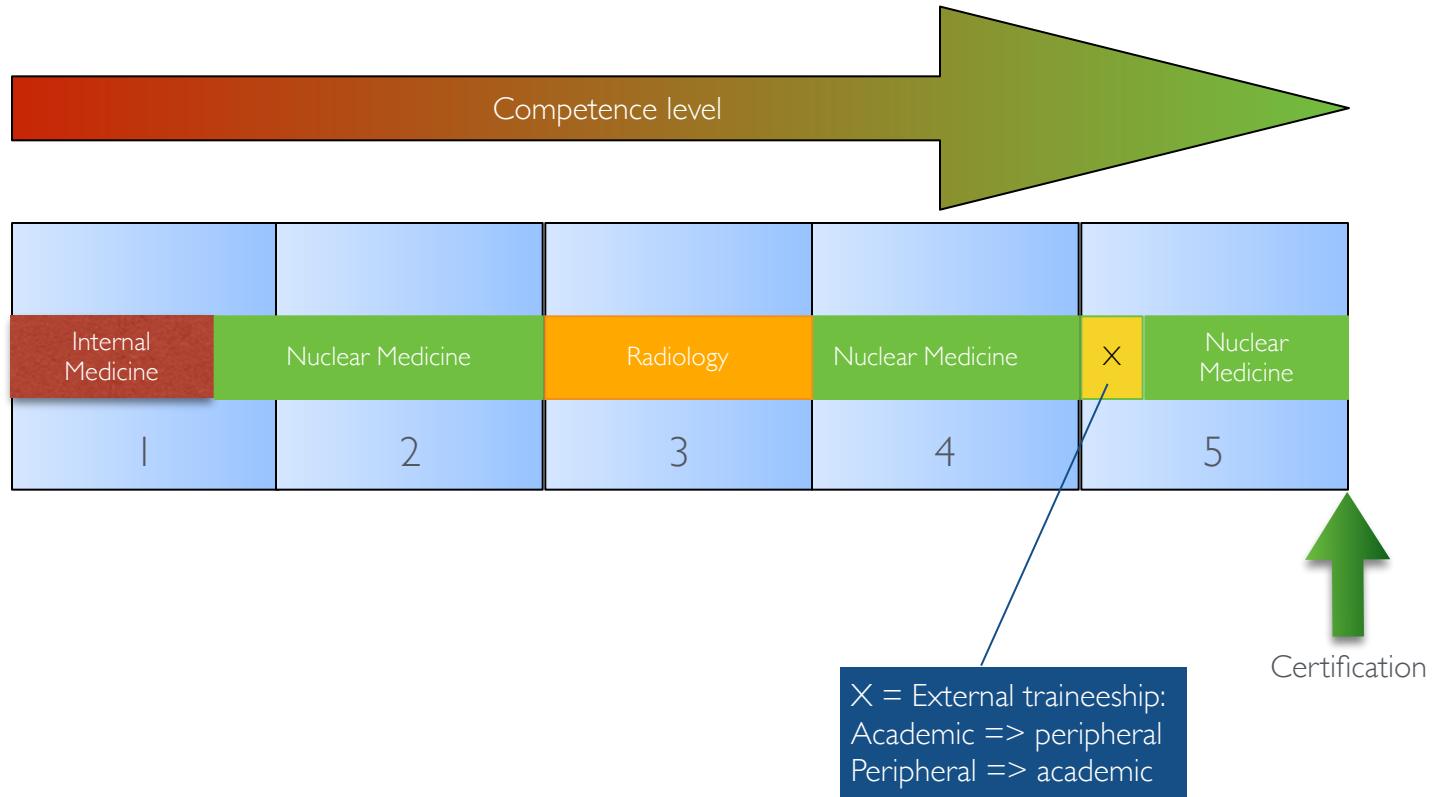


An annual fee per trainee per annum is paid to accredited training hospitals, amounting to approx. €125000. From this fee the salary of the trainee can be paid + facilities (e.g. library!) + other costs. Also included is 0.1 fte salary for another physician, non-trainee.



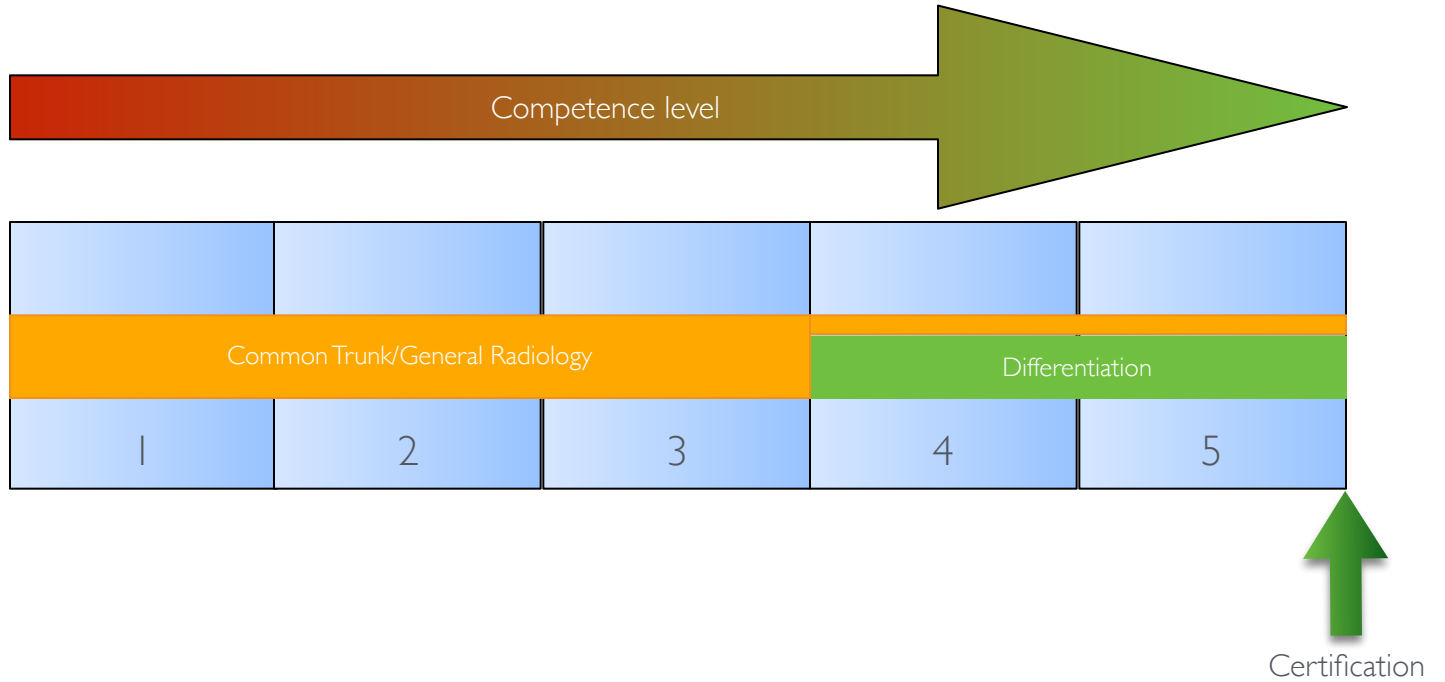


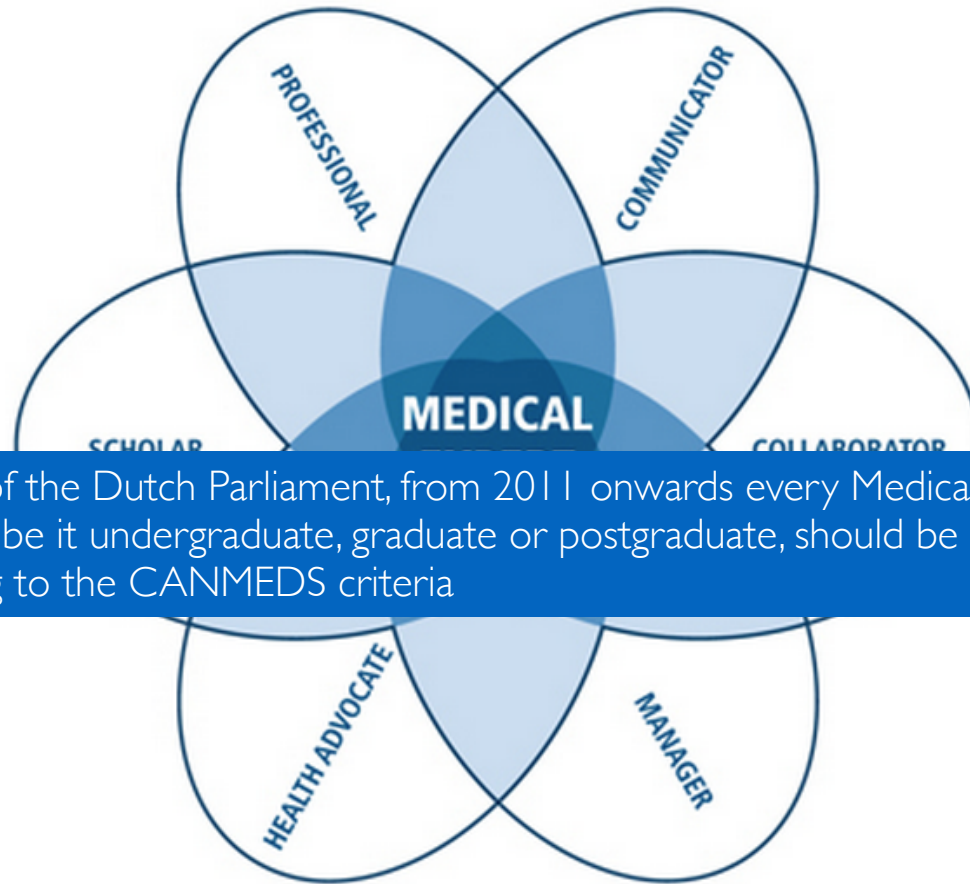
Current Curriculum: Nuclear Medicine





Current Curriculum: Radiology





By wish of the Dutch Parliament, from 2011 onwards every Medical Training Program, be it undergraduate, graduate or postgraduate, should be built according to the CANMEDS criteria





CANMEDS

Competence oriented learning

- **Key competencies**

- e.g. *Medical expert*: “function effectively as consultants, integrating all of the CanMEDS Roles to provide optimal, ethical and patient-centered medical care”
- e.g. *Communicator*: “Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals”
- e.g. *Health Advocate*: “Promote the health of individual patients, communities and populations”

- **Enabling competencies**

- e.g. *Collaborator*:
 - I. Participate effectively and appropriately in an interprofessional healthcare team
 - I.1. Clearly describe their roles and responsibilities to other professionals
 - I.2. Describe the roles and responsibilities of other professionals within the health care team

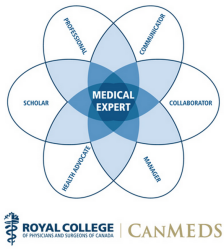




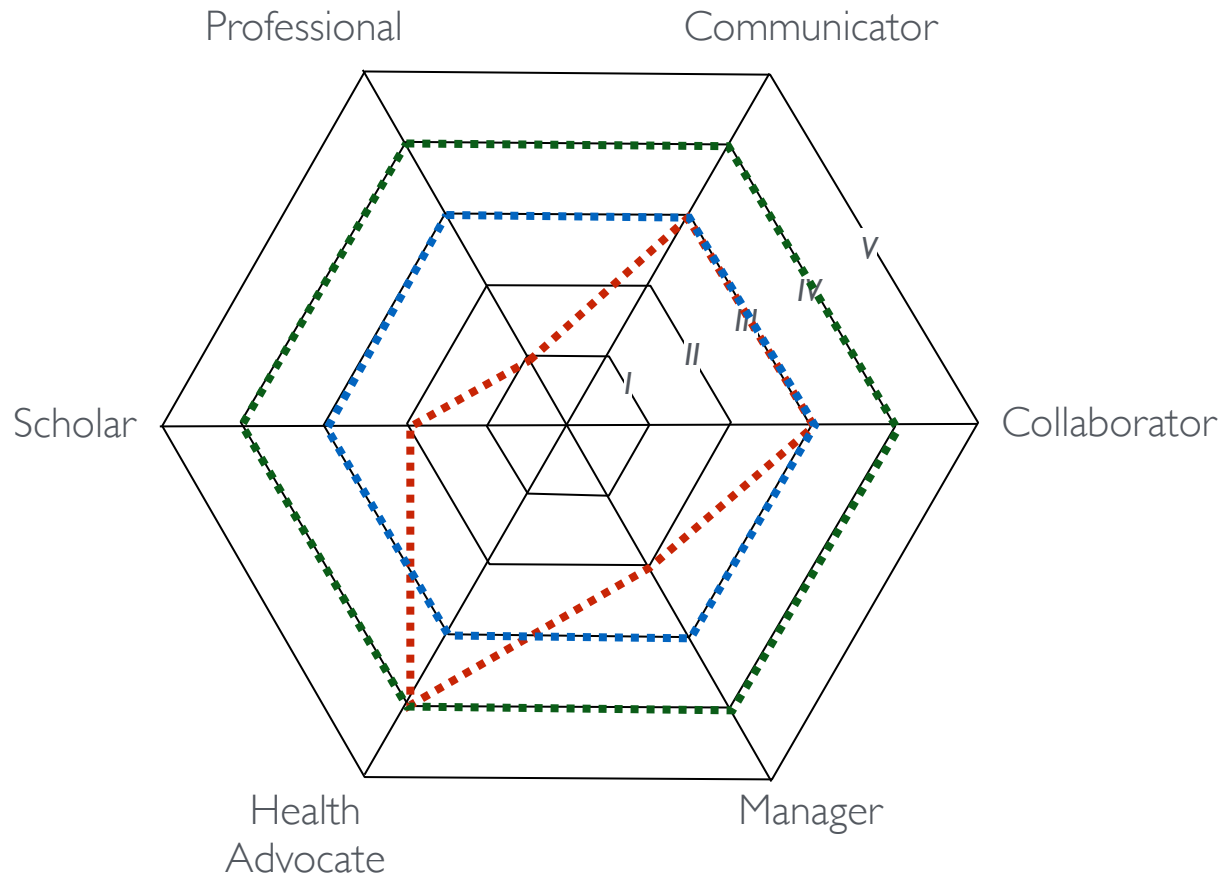
CANMEDS Competency levels

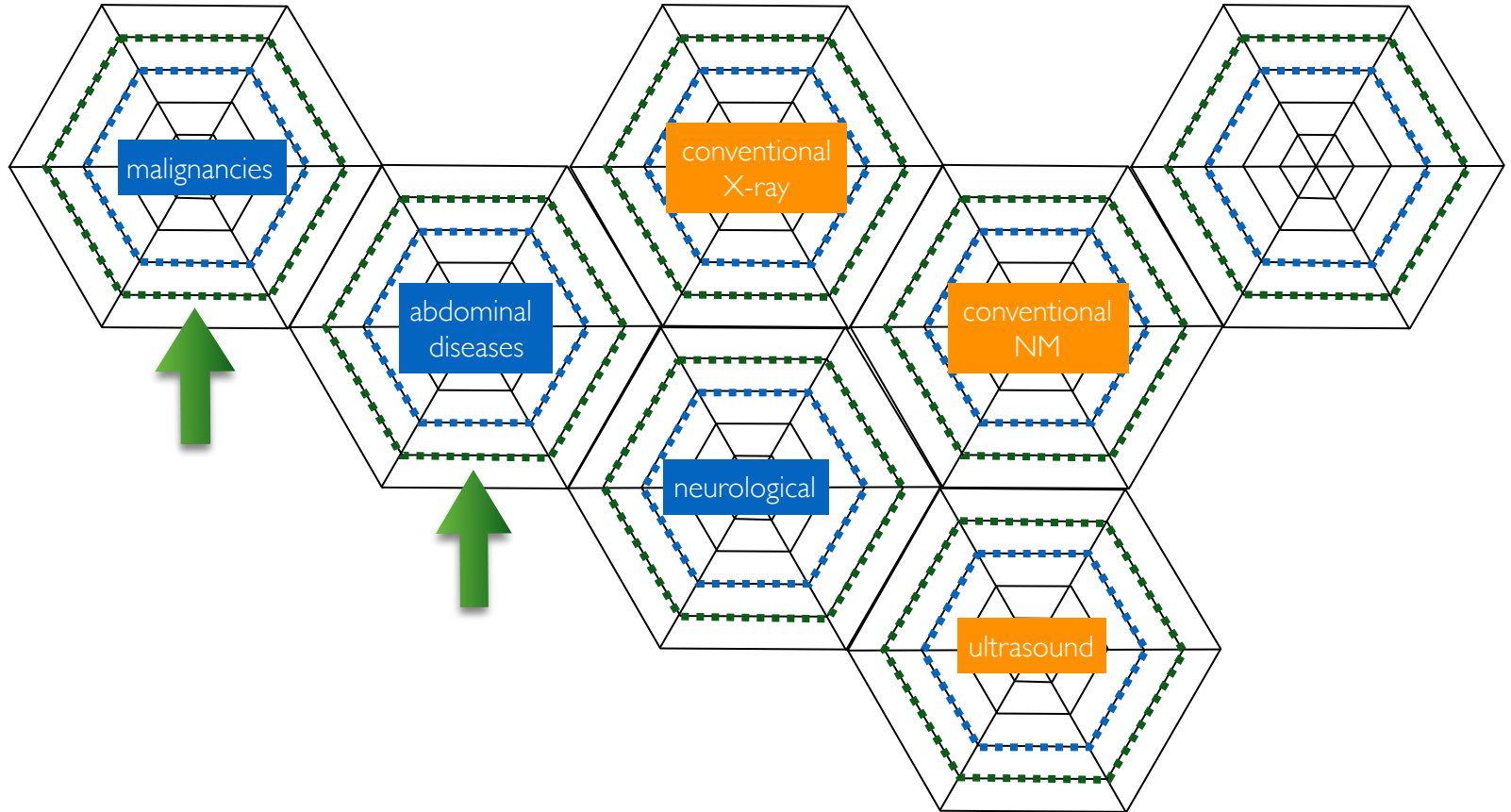
Level		
I	Novice	
II	Basic knowledge	Works under strict supervision (push)
III	Advanced knowledge	Works under limited supervision (pull)
IV	Skilled	Works independently
V	Expert	Role-model





Level		
I	Novice	
II	Basic	Works
III	Advance	Works
IV	Skilled	Works
V	Expert	Role-



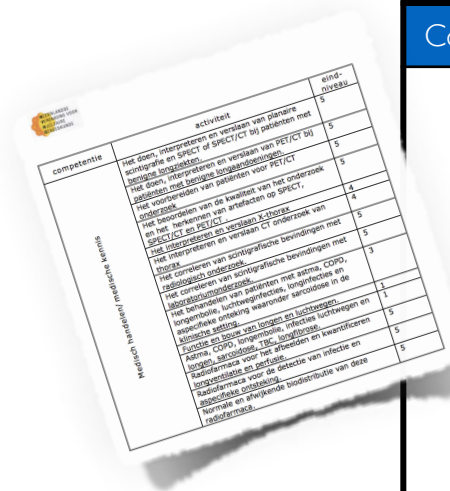


Entrusted Professional Activities - EPA



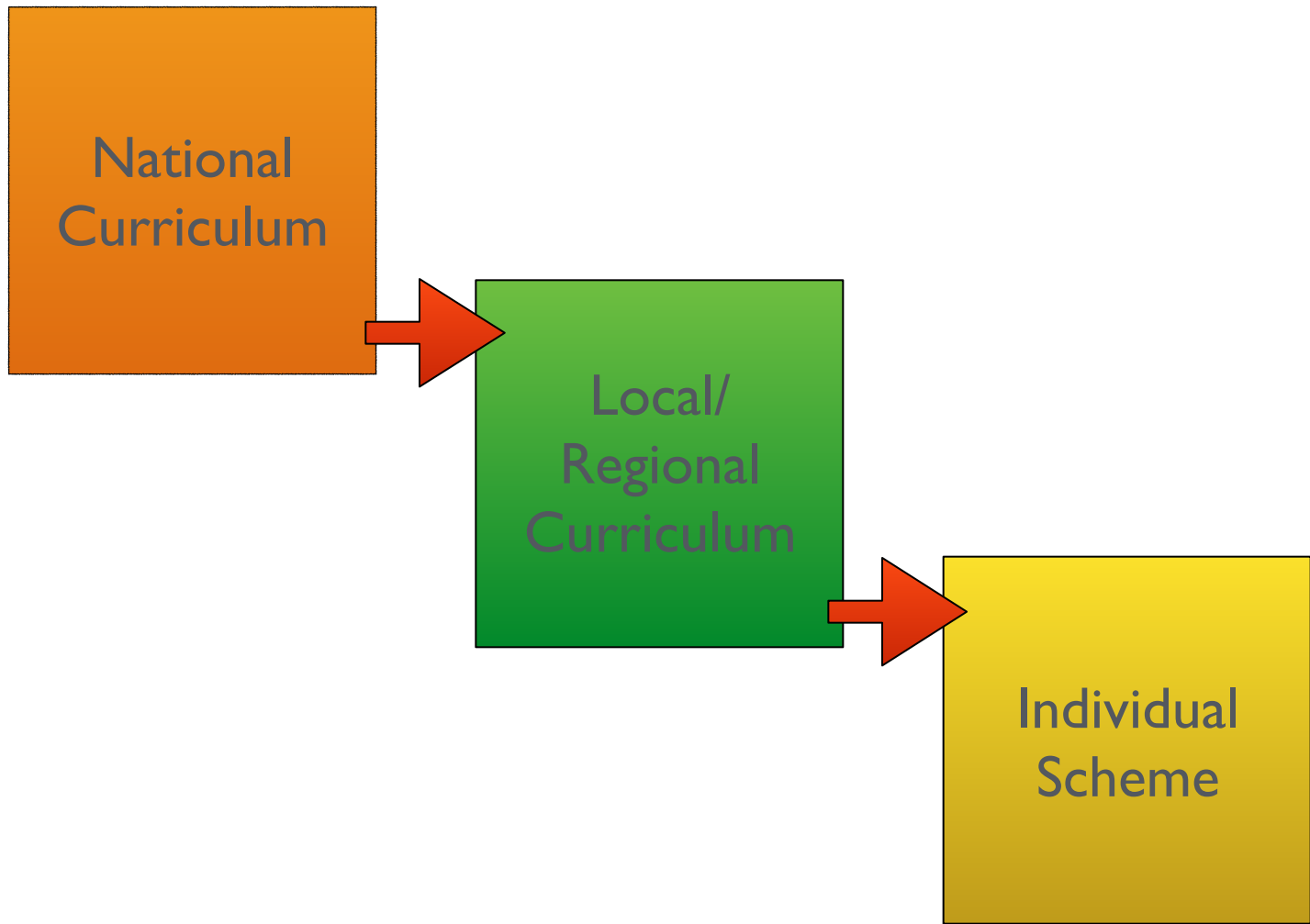
Example Competency

Theme: Pulmonary Disorders



Competency	Activity	End level of
Professional	Performing, interpreting and reporting of planar scintigraphy and SPECT or SPECT/CT in patients with benign pulmonary disorders	V
	Performing, interpreting and reporting of PET/CT in patients with benign pulmonary disorders	V
	Preparation of patients for PET/CT	V
	Assessment of the quality of investigation and recognition of artifacts on SPECT, SPECT/CT and PET/CT	V
	Interpreting and reporting of planar thoracic X-ray	IV
	Interpreting and reporting of thoracic-CT	IV
	Correlating scintigraphic findings with CT-findings	V
	Correlating scintigraphic findings with laboratory findings	V
	Treatment of patients with asthma, COPD, pulmonary embolism, pulnory and bronchial infections and specific infections incl.	III
	Function and anatomy of the airways	I
	Asthma, COPD, pulmonary embolism, infections of the bronchii and lungs, sarcoidosis, TBC, pulmonary fibrosis	I
	Radiopharmaceuticals for imaging and quantitation of pulmonary ventilation and perfusion	V
	Radiopharmaceuticals for the detection of infectious diseases and (aspecific) inflammation	V
	Normal and abnormal biodistribution of these	V







CORONA-process

- After some 2 years of deliberations in 2013 the members of the Dutch Societies for Radiology and for Nuclear Medicine decided to build a new curriculum merging both traineeships
- It was recognized that the future needs a new medical imager, that can act as an expert, not on technique but on imaging an organ system
- That imager should be at an equal level with the respective clinician
- The American example should not be followed





Objectives CORONA Curriculum

- Creating a medical imager with broad knowledge of Radiology and Nuclear Medicine and differentiated in one area of special interest
- The new medical imager, named 'Radiologist', can work in a general radiological practice in the full range of the field, including nuclear medicine (and vice versa)





Consequently: everybody will suffer



Pre-conditions

- Equality of all trainees
- Current radiology training scheme used as template
- Practical considerations
- Flexible
- Room for local flavor
- Internships should not differ to much in time





Equality

- All trainees follow the **same** common trunk
- All trainees have the same **basic** level of knowledge at the end of the common trunk and the end of residency
- All trainees can make an **educated choice** for a differentiation
- All trainees will **differentiate**





Basic Radiology: WHICH?

- Acute Radiology (conventional, US, CT)
- First line diagnostics (conventional, US, MR, (CT?))
- Basic oncology (conventional, US, CT => RECIST)
- Basic interventional radiology (US guided biopsies)
- Other (e.g. basic MRI spine & musculoskeletal)





COMMON TRUNK: Consensus

- 2.5 years
- Nuclear Medicine: 8 weeks
- End of 1st year: level III competencies for all activities frequently encountered on duty
- Level III competencies for all activities in order to be allowed to proceed





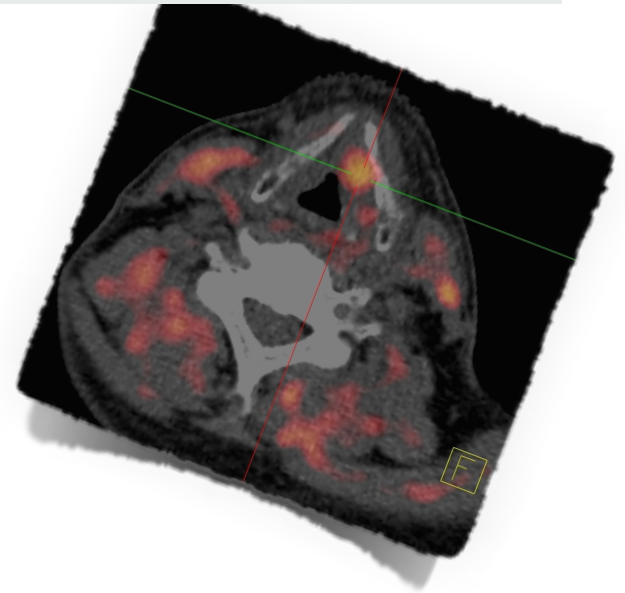
Common trunk 2.5 years

	Year 1	Year 1.5	Year 2.5
Thorax/Cardiovascular	10	10	20
Abdomen	10	10	20
Neuro	8	8	16
Musculoskeletal	8	8	16
Pediatric	-	4	4
Mammography	-	4	4
Interventional Radiology	-	8	8
Nuclear Medicine	-	8	8
Education/Courses	4	6	10
Holidays/Leisure	4	6	10
Facultative/repeat	8	6	14



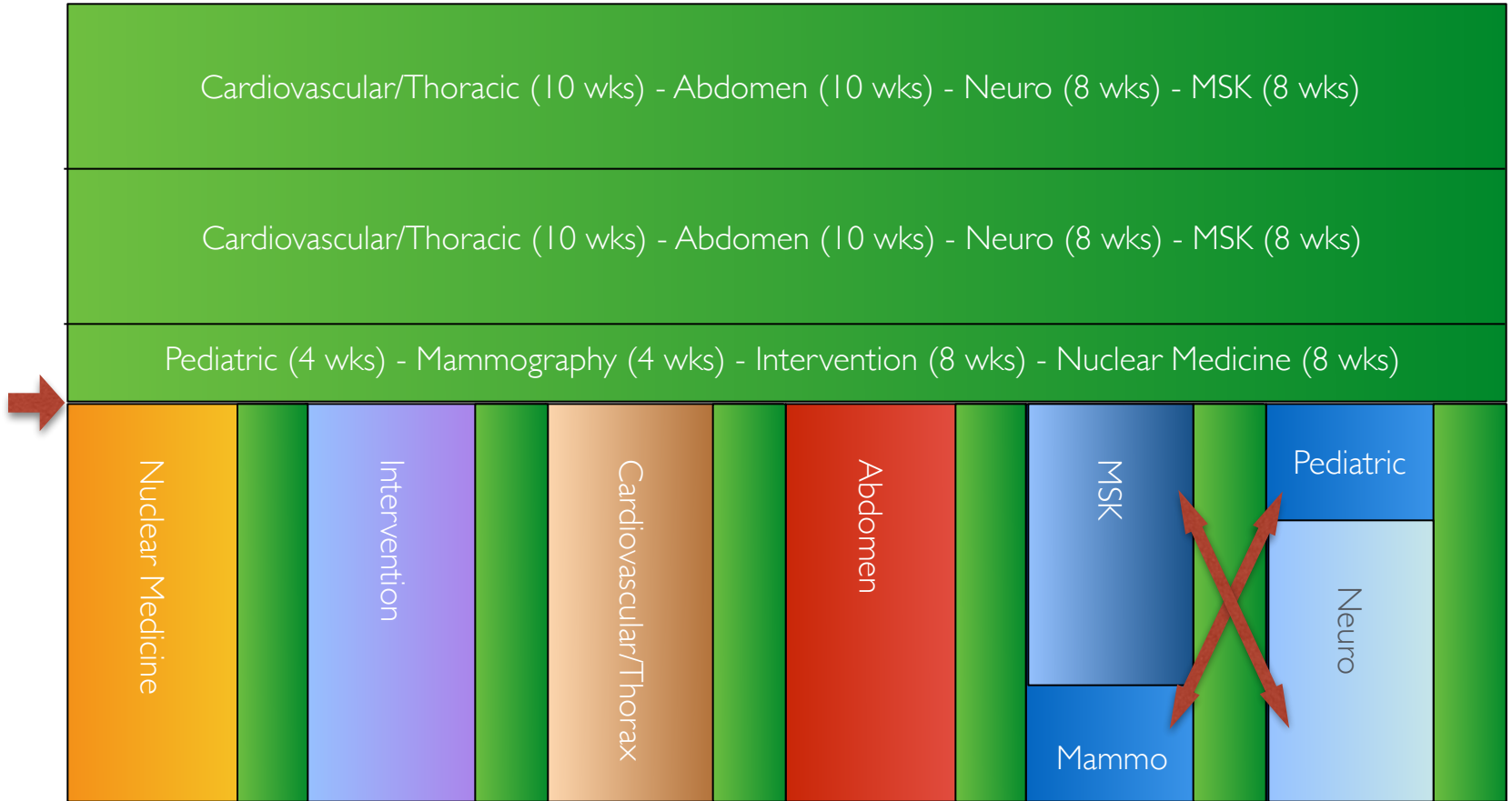
DIFFERENTIATION PHASE

Time (yrs)	Differentiation			
1,5	Thorax/ Cardiovascular	Abdomen	Interventional Radiology	Nuclear Medicine
1,0	Neuro	Musculoskeletal		
0.5	Pediatric	Mammo		





Current Curriculum: CORONA





CORONA Summary

- Output: widely employable medical imager with differentiation
- Equality
- Flexibility
- Differentiation for everyone
- Level IV competency not possible for every aspect of the profession
- Local and individual curricula become more leading





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