



Training Programme (essential elements)
Clinical Practical Year (CPY)
at Medical University of Vienna, Austria

CPY-Tertial C

Radiology

Valid from academic year 2025/26

Responsible for the content

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This training programme applies to the subject of "Radiology and Nuclear Medicine" within CPY tertial C "Electives". The training programmes for the elective subjects in CPY tertial C are each designed for a duration of 8 weeks. If the subject in CPY tertial C is being completed over a period of 16 weeks, the specified content shall be treated in greater depth.

Subject-Specific Information

1. Objectives of the Radiology and Nuclear Medicine Subject in the Clinical Practical Year (CPY)

In CPY Elective Tertial C Radiology and Nuclear Medicine, students are expected to deepen the knowledge and skills they have already acquired in diagnostics according to the Austrian Competence Level Catalogue and to progressively establish diagnoses independently. The subject of Radiology and Nuclear Medicine is offered as an elective with a duration of either 8 or 16 weeks in the Clinical Practical Year. The goal of the CPY tertial is to develop skills in interpreting radiological findings, making diagnoses and differential diagnoses, and acquiring practical knowledge of common clinical conditions.

Students should gain fundamental knowledge in radiology by integrating into radiological teams, under the guidance of specialists or doctors in advanced specialist training. This includes basic knowledge in X-ray diagnostics, ultrasound, and cross-sectional imaging (CT/MRI), as well as patient education, preparation for examinations, and medical history taking. A key part of the training includes participation in all department-specific meetings such as morning rounds, interdisciplinary case conferences, tumor boards, and in-house educational events.

Each CPY tertial includes a structured feedback discussion at the beginning, midterm, and end of the rotation:

1. In the introductory meeting, the framework and individual goals are set.
2. In the midterm meeting, the current progress is assessed.
3. In the final meeting, a summary is drawn.

2. Clinical responsibilities in the sub-specialized area of Radiology

The following content should be particularly considered in Mini-CEX (Mini-Clinical Evaluation Exercise), DOPS (Direct Observation of Procedural Skills), and CPY task assignments. They serve as recommendations, guidance, and explanations for structuring the CPY tertial.

Structure of rotations in 8 or 16 Weeks:

- For an **8-week CPY tertial**, a basic training of 2 weeks each in X-ray/projection radiography, ultrasound, and CT/MRI should be completed.
- The remaining 2 weeks can be freely chosen—either for in-depth training in one of the basic areas (points 1–4) or in a specialized area (points 5–10).
- The clinical conditions learned are assessed using Mini-CEX and DOPS.
- For a **16-week CPY tertial**, the same 6 weeks of basic training apply, with 10 weeks available for elective training.

Rotations:

1. Projection Radiography

- Thorax: Normal chest X-ray, pneumothorax, pneumonia, atelectasis, ICU lungs – "tubes and lines", pulmonary edema, cardiomegaly/cardiac decompensation, nodules, and masses
- Abdomen (plain film): Ileus, free air
- Musculoskeletal: Fractures, spinal deformities, osteochondrosis, joint osteoarthritis

2. Ultrasound

- Abdomen: Anatomy, diffuse liver diseases, benign/malignant liver lesions, cholecystolithiasis, cholecystitis, ductal ectasia, free fluid/ascites
- Kidneys and urinary tract: Cysts, shrunken kidneys, carcinoma, hydronephrosis, bladder
- Thyroid: Adenoma, cyst, thyroiditis

3. CT

- Thorax: Bronchial carcinoma, metastases, COPD/emphysema, pleural effusion, pneumonia, pulmonary edema, tuberculosis
- Abdomen (GI tract): GI tumors, diverticulitis, ileus, inguinal hernia, peritoneal carcinomatosis, pancreatitis, pancreatic carcinoma, liver diseases, tumors/metastases, cholecystitis, cholecystolithiasis, ductal ectasia, ascites
- Kidneys/adrenals: Cysts, horseshoe kidney, nephro-/urolithiasis, renal carcinoma, adrenal adenoma, adrenal carcinoma

4. MRI

- Abdomen: Pancreatic carcinoma, liver tumors/metastases, rectal carcinoma
- Kidneys/adrenals: Adrenal adenomas and carcinomas
- Musculoskeletal: Spondylitis, bone metastases, rotator cuff tears, meniscus/ACL injuries, ligament injuries, ankle

5. Interventional Procedures/Cardiovascular System

- Vascular diagnostics – CT angiography, MRI, digital subtraction angiography (DSA)
- Vascular diseases
- Arterial punctures
- Stent indications, stent grafts
- Cardiac imaging

6. Neuroradiology

- Ischemic stroke
- Microangiopathies
- Intracranial hemorrhage
- Vascular diseases/malformations
- Meningitis, encephalitis
- CNS tumors

7. Musculoskeletal System

- Osteoarthritis
- Spondylosis
- Spondylarthrosis
- Disc disease
- Multiple myeloma

- Osteosarcoma
 - Coxitis fugax
 - Avascular necrosis of the femoral head
 - Fibrous dysplasia
- 8. Trauma**
- Fracture diagnostics
 - Head/brain trauma
 - Aortic rupture
 - Rib fractures
 - Pulmonary contusion
 - Liver rupture
 - Splenic rupture
 - Spinal injuries
- 9. Breast Diagnostics**
- Benign lesions
 - Cysts
 - Adenomas
 - Ductal/lobular carcinomas
 - Indications for biopsy
- 10. Nuclear medicine**
- PET/CT and PET/MRI
- 11. Pediatric Radiology**
- Chest X-ray: Pneumonia, neonatal respiratory distress syndrome and sequelae, aspiration, foreign body, atelectasis, "tubes and lines", pulmonary edema, cardiomegaly, masses, diaphragmatic hernia
 - Abdominal X-ray: Gas distribution, necrotizing enterocolitis, perforation, "tubes and lines", foreign bodies
 - Ultrasound: Renal cysts, hydronephrosis, liver disease, gallstones, vascular imaging, hip ultrasound, pyloric stenosis, intussusception, volvulus
 - CT and MRI of thorax and abdomen: Cystic fibrosis, liver diseases, acute bleeding, ileus, musculoskeletal

3. Learning objectives (competences)

The following skills must be acquired or deepened in Radiology and Nuclear Medicine during the CPY. Skills already acquired at the level of internships and simulation-based practices should now be applied to real patients.

3.1 Competences to be achieved (mandatory)

A) History taking

1. Taking a medical history
2. Assessing clinical information necessary for reporting; obtaining further data if needed
3. Identifying contraindications to imaging

B) Imaging Techniques

4. Reviewing the indication for radiologic imaging
5. Administering medications during exam preparation
6. Recognizing and interpreting pathological findings
7. Summarizing main points for diagnosis and differential diagnosis
8. Performing basic ultrasound of upper abdomen, kidneys, thyroid
9. Being present during imaging procedures

C) Performance of routine skills and procedures

10. Inserting a peripheral IV cannula
11. Administering IV injections
12. Handling a central venous catheter under supervision
13. Checking contrast agent administration for drug interactions
14. Administering contrast agents
15. Verifying the correctness of imaging referrals

D) Therapeutic measures

N/A

E) Communication with patient/team

16. Explaining exams for informed consent under supervision
17. Informing patients about risks and complications of radiological exams
18. Communicating ethically and legally with patients and relatives; ensuring understanding
19. Communicating with critically ill patients
20. Communicating with geriatric patients
21. Summarizing diagnostic findings and current problems
22. Discussing radiological findings with referring physicians

F) Documentation

23. Applying internal, national, and international guidelines and protocols
24. Retrieving patient-specific data from hospital systems
25. Drafting basic reports of chest X-rays, ultrasound, and CT scans

3.2 Optional competences

In addition to the required competencies, optional skills may be acquired, particularly in image interpretation within the following specialties:

1. Mammography
2. Interventional radiology
3. Neuroradiology
4. Musculoskeletal radiology incl. head & neck
5. Trauma and emergency radiology
6. PET-CT
7. Pediatric radiology

4. Information on verification of performance, on-going assessments

4.1 The following aspects can be assessed in the Mini-CEX:

1. Communication with the patient to explain radiological examinations
2. Medical history taking
3. Use of appropriate imaging modalities for the condition in question

This list can be expanded accordingly.

4.2 The following skills can be assessed in the DOPS

1. Handling a central venous catheter
2. Checking contrast media for drug interactions
3. Administering contrast media
4. Administering medications during preparation
5. Reviewing the indication for a radiological exam
6. Recognizing and interpreting pathologic findings based on modality
7. Summarizing diagnostic and differential diagnostic information
8. Performing basic ultrasounds (abdomen, kidneys, thyroid)
9. Creating basic reports (X-ray, ultrasound, CT) with indication, description, and summary (including differential diagnosis and recommendations for further imaging)
10. Attending examinations
11. Creating referrals (fictitious Word document if electronic system used)
12. Verifying referral accuracy
13. Preparing for case discussions and tumor boards
14. Presenting a diagnostic case

This list can be expanded accordingly.

5. Subject-Specific Explanations for CPY Assignments

The learning objectives are intended to reflect the most common activities in the clinical routine of the field of Radiology and Nuclear Medicine, which every physician involved in medical radiological patient care should master, regardless of later specialization. This includes, in addition to taking medical histories, understanding the areas of application of different diagnostic techniques, considering differential diagnoses, and presenting and discussing these findings. Furthermore, KPJ students should participate in the implementation of modern diagnostic examination techniques and thus deepen their theoretical knowledge.

The following CPY assignments must be completed in the field of Radiology.

(A) Active Assignments – Mandatory Part		per 8 weeks
Brief patient presentation		6 times
Detailed patient presentation		2 times
Report creation*		4 times
Create referral		2 times
Check referral for accuracy		2 times
"State of the Art" presentation (20 min)		1 times
(A) Active Assignments – Elective Part		per 8 weeks
Brief patient presentation	points	At least 15 points from at least 2 categories must be achieved.
Detailed patient presentation	3	
Report creation*	7	
Create referral	5	
Check referral for accuracy	2	
"State of the Art" presentation (20 min)	2	
	8	

*Report creation includes: indication, image description, and summary. A report reflection should be conducted, with differential diagnosis and a note on further diagnostic methods.

(B) Participation in Educational and Training Events – Mandatory Part		per 8 weeks
Continuing education/residency training		2 times
(B) Teilnahme an Aus- und Fortbildungsveranstaltungen –		per 8 weeks
Continuing education/residency training	points	Elective events must total at least 4 points from at least 2 categories.
Participation in "State of the Art" presentations based on specific patients	2	
External education and training events per half-day (congresses, etc.)	1	
Course attendance per half-day (e.g., ECG course, ultrasound, suturing, burnout prevention)	3	
Live events (e.g., webinars)	3	
	1	

6. E-Learning

Moodle and a webinar are available for e-learning.

1. The webinar serves as a platform for presenting patient cases and "State of the Art" presentations.
2. The Moodle course supports logbook task completion with structured reporting tools. Case presentations and practice questions for the Return Week are also available.

7. Subject-Specific Notes on the Midterm and Final Interviews

The midterm and final interviews are conducted by supervising radiologists, based on the learning objectives and the CPY student's logbook. Each student should be assigned two responsible mentors. These mentors are to be regularly involved with the student and are responsible for the achievement of educational goals and providing consistent feedback.

8. Literature

1. *Orientation Guide Radiology: Guide to the Optimal Use of Clinical Radiology*, 5th Edition, 2020 ([link](#))
2. Hamer O., Zorger N., Feuerbach St., Müller-Wille R. *Basic Course in Chest X-Ray*, Springer-Verlag, 2012
3. Webb W.R., Brandt W., Major N. *Fundamentals of Body CT*, 5th Edition, Elsevier, 2019