

These training requirements apply to those who begin training on or after July 1, 2022.

The following training experiences are required, recommended, or optional as indicated:

TRANSITION TO DISCIPLINE (TTD)

This stage focuses on introducing residents to the specialty of Diagnostic Radiology, providing a comprehensive orientation to the setting in which they will work and the goals of the educational program. Residents will learn to use the equipment and technology of the diagnostic radiology service to retrieve and manipulate images, access clinical information, and record an imaging report. This stage also provides broad experience in a range of clinical disciplines serving as a basis to understand the role of medical imaging in clinical care. Residents will apply the knowledge and skills achieved in medical school to assess patients and contribute to management plans.

Required training experiences (TTD stage):

1. Clinical training experiences
 - 1.1. Diagnostic Radiology in a mixture of body regions and modalities, including abdomen and pelvis, chest, musculoskeletal (MSK), and neuroimaging
 - 1.2. Clinical medicine, including
 - 1.2.1. Emergency medicine in the adult setting
 - 1.2.2. General Surgery
 - 1.2.3. Internal medicine inpatient ward
 - 1.2.4. Pediatrics ward and/or emergency department
 - 1.2.5. One or more of the following clinical experiences:
 - 1.2.5.1. Critical Care Medicine
 - 1.2.5.2. Medical and/or Radiation Oncology
 - 1.2.5.3. Neurology
 - 1.2.5.4. Neurosurgery
 - 1.2.5.5. Pathology

- 1.2.5.6. Other surgical specialty
- 1.2.5.7. Other medical subspecialty
- 2. Other training experiences
 - 2.1. Orientation to the program and university, including policies and procedures, university resources, and wellness resources
 - 2.2. Orientation to the hospital, including
 - 2.2.1. Information technology and systems, picture archiving and communication systems (PACS), and electronic medical records
 - 2.2.2. Hospital policies, including patient privacy
 - 2.3. Formal instruction in
 - 2.3.1. Imaging anatomy
 - 2.3.2. Imaging physics and image acquisition, including radiography, ultrasonography (US), computed tomography (CT), and magnetic resonance imaging (MRI)
 - 2.3.3. Imaging safety (e.g., As Low As Reasonably Achievable (ALARA) principle, use of contrast media)
 - 2.3.4. Components of the medical imaging report
 - 2.4. Completion of a Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) certification course, or equivalent
 - 2.5. Orientation to research opportunities and requirements

Recommended training experiences (TTD stage):

- 3. Other training experiences
 - 3.1. Completion of Advanced Radiology Life Support (ARLS) course or equivalent

Optional training experiences (TTD stage):

- 4. Other training experiences
 - 4.1. Completion of an MRI safety training module or course

FOUNDATIONS OF DISCIPLINE (F)

The focus of this stage is the development of the knowledge and skills required to integrate clinical and imaging information in the evaluation of common and/or acute patient presentations. Clinical experiences will focus on safe acquisition of images from a variety of body regions using multiple modalities. These clinical experiences focus on understanding the contribution of various imaging modalities for the resolution of the clinical question and developing a systematic approach to analysis of medical images. The resident will learn to identify, report, and communicate critical findings.

Required training experiences (Foundations stage):

1. Clinical training experiences
 - 1.1. Diagnostic Radiology services for emergency, inpatient, and ambulatory patients, including at a minimum
 - 1.1.1. Body regions
 - 1.1.1.1. Abdomen and pelvis
 - 1.1.1.2. Chest
 - 1.1.1.3. MSK
 - 1.1.1.4. Neurologic
 - 1.1.2. Modalities
 - 1.1.2.1. Radiography
 - 1.1.2.2. US
 - 1.1.2.3. CT
 - 1.1.3. After-hours¹
 2. Other training experiences
 - 2.1. Formal instruction in
 - 2.1.1. Imaging anatomy
 - 2.1.2. Imaging physics and image acquisition, including radiography, US, CT, and MRI
 - 2.1.3. Radiation safety
 - 2.1.4. Contrast reactions
 - 2.1.5. Conflict management
 - 2.1.6. Research methods and research ethics
 - 2.1.7. Fatigue risk management
 - 2.2. Simulation training in preparation for independent call

¹ *In Foundations, the after-hours experience is an introduction to after-hours radiology; this does not mandate independent call.*

Recommended training experiences (Foundations stage):

3. Clinical training experiences
 - 3.1. Fluoroscopy for emergency patients
 - 3.2. Pediatric radiology
4. Other training experiences
 - 4.1. Formal instruction in MRI safety
 - 4.2. Critical appraisal activities, such as journal club
 - 4.3. Initiation of or participation in a scholarly project

CORE OF DISCIPLINE (C)

In this stage, residents build on the skills and knowledge of the previous stages to protocol, perform, and supervise all medical imaging studies. They interpret and report these studies. They perform diagnostic radiology procedures. They discuss imaging studies, procedures, and findings with patients and families. At this stage residents are advisors to other physicians on all diagnostic radiology studies and procedures. They also apply their expertise and collaboration skills to participate in interdisciplinary rounds.

The experiences in this stage are sequenced to provide the resident with the full breadth of the specialty within the first half of the Core stage; this ensures experience in all aspects of the discipline prior to the timing of decisions regarding advanced or fellowship training. Subsequent repeat experiences in the various body regions and imaging modalities provide experience with more complex cases and at higher workload volumes.

Required training experiences (Core stage):

1. Clinical training experiences
 - 1.1. Diagnostic Radiology, in the breadth of the discipline, including the full spectrum of patient acuity, body regions, and imaging modalities
 - 1.1.1. Body regions
 - 1.1.1.1. Abdomen and pelvis
 - 1.1.1.2. Breast
 - 1.1.1.3. Cardiac
 - 1.1.1.4. Chest
 - 1.1.1.5. Head and neck
 - 1.1.1.6. MSK
 - 1.1.1.7. Neurologic
 - 1.1.1.8. Vascular

- 1.1.2. Imaging modalities
 - 1.1.2.1. Radiography
 - 1.1.2.2. Fluoroscopy
 - 1.1.2.3. US, including obstetric
 - 1.1.2.4. CT
 - 1.1.2.5. Mammography
 - 1.1.2.6. MRI
 - 1.1.2.7. Nuclear medicine
 - 1.1.3. Emergency radiology
 - 1.1.4. Interventional radiology
 - 1.1.5. Pediatric radiology
 - 1.1.6. Community radiology
 - 1.1.7. Participation at interdisciplinary case conferences
 - 1.1.8. After-hours, including supervision of junior residents
2. Other training experiences
- 2.1. Formal instruction in
 - 2.1.1. The clinical and biomedical sciences of Diagnostic Radiology
 - 2.1.2. Physics of medical imaging
 - 2.1.3. Biomedical ethics
 - 2.2. Career counselling
 - 2.3. Completion of ARLS course, or equivalent (if not completed in an earlier stage)
 - 2.4. Critical appraisal activities, such as journal club
 - 2.5. Attendance at quality assurance and improvement activities, including morbidity and mortality rounds
 - 2.6. Teaching other residents, students, or health care professionals
 - 2.7. Ongoing participation in a scholarly research, quality improvement, or educational project
 - 2.8. In-training examinations, including objective structured clinical examination (OSCE)

Recommended training experiences (Core stage):

- 3. Other training experiences
 - 3.1. Formal instruction in practice management topics, including
 - 3.1.1. Curriculum vitae (CV) development
 - 3.1.2. Interview skills

- 3.2. Simulation training
 - 3.2.1. Procedures
 - 3.2.2. Critical scenarios
- 3.3. Completion of a course in radiopathology correlation, such as the American Institute of Radiologic Pathology (AIRP) course
- 3.4. Participation in administrative activities of the program, department, or hospital
- 3.5. Attendance at regional, national, or international conferences, scientific meetings, or review courses
- 3.6. Development of an individualized learning and career plan

Optional training experiences (Core stage):

- 4. Clinical training experiences
 - 4.1. Pathology
 - 4.2. Participation in global/international outreach radiology elective
- 5. Other training experiences
 - 5.1. Completion of a resident as teacher course
 - 5.2. Formal course or certification in
 - 5.2.1. Informatics or artificial intelligence
 - 5.2.2. Leadership
 - 5.2.3. Medical education
 - 5.2.4. Practice management
 - 5.2.5. Research methods
 - 5.3. Teaching in the formal undergraduate medical education (UGME) curriculum
 - 5.4. Participation in the creation of a teaching module, case file, or program curriculum

TRANSITION TO PRACTICE (TTP)

In this stage, residents consolidate and integrate their knowledge and skills to provide diagnostic radiology services. They demonstrate autonomy with the full range of diagnostic radiology imaging modalities and body regions, including demonstrating an approach to complex cases. The resident contributes expertise at interdisciplinary rounds and supports clinical colleagues in the development of management plans. This stage also focuses on preparation for independent practice, with instruction and experience in areas of administrative and professional responsibility, including leadership of the diagnostic radiology service.

Required training experiences (TTP stage):

1. Clinical training experiences
 - 1.1. Diagnostic Radiology, including the full spectrum of patient acuity, in the role of junior attending²
 - 1.1.1. Any diagnostic radiology experience
 - 1.1.2. Participation in interdisciplinary case conferences
 - 1.1.3. After-hours coverage
 - 1.2. Specific and/or enhanced skill acquisition related to defined learning needs based on individual interest, career plan, and/or community needs
2. Other training experiences
 - 2.1. Completion of scholarly research, quality improvement, or educational project
 - 2.2. Participation in and/or formal instruction in continuous quality improvement and peer review in Diagnostic Radiology
 - 2.3. Provision of formal and informal teaching for junior learners

Recommended training experiences (TTP stage):

3. Other training experiences
 - 3.1. Formal instruction in practice management topics, including
 - 3.1.1. Continuing professional development requirements
 - 3.1.2. CV development
 - 3.1.3. Interview skills
 - 3.1.4. Human resource management
 - 3.1.5. Financial planning
 - 3.1.6. Medicolegal requirements, including the role of the Canadian Medical Protective Association
 - 3.1.7. Wellness and work-life balance as a practising radiologist
 - 3.2. Completion of ARLS course, or equivalent
 - 3.3. Presentations at formal teaching sessions (e.g., grand rounds)

² "Junior attending" means that the resident assumes responsibility for patient care, and leadership in the education and clinical supervision of junior colleagues, with as much independence as permitted by ability, law, and hospital policy.

- 3.4. Presentations or attendance at scientific meetings or conferences
- 3.5. Participation in a protocol and/or guideline development and implementation

Optional training experiences (TTP stage):

4. Other training experiences
 - 4.1. Formal course(s), workshop(s), or certification in:
 - 4.1.1. Informatics or artificial intelligence
 - 4.1.2. Leadership
 - 4.1.3. Medical education
 - 4.1.4. Research methods

CERTIFICATION REQUIREMENTS

Royal College certification in Diagnostic Radiology requires all of the following:

1. Successful completion of the Royal College examination in Diagnostic Radiology; and
2. Successful completion of the Royal College Diagnostic Radiology Portfolio.

NOTES:

The Diagnostic Radiology Portfolio refers to the list of entrustable professional activities across all four stages of the residency Competence Continuum, and associated national standards for assessment and achievement.

MODEL DURATION OF TRAINING

Progress in training occurs through demonstration of competence and advancement through the stages of the Competence Continuum. Diagnostic Radiology is planned as a 5-year residency program. There is no mandated period of training in each stage. Individual duration of training may be influenced by many factors, which may include the resident's singular progression through the stages, the availability of teaching and learning resources, and/or differences in program implementation. Duration of training in each stage is therefore at the discretion of the faculty of medicine, the competence committee, and the program director.

Guidance for programs

The Royal College Specialty Committee in Diagnostic Radiology's suggested course of training, for the purposes of planning learning experiences and schedules, is as follows:

- 8-13 blocks in Transition to Discipline
 - 1-3 blocks of Diagnostic Radiology, preferably early in the course of training
 - 7-11 blocks of clinical experiences, including 1-2 blocks of Emergency Medicine
- 6-10 blocks in Foundations of Discipline

- *39-45 blocks in Core of Discipline*
 - *The first part of the Core stage ensures experience in all aspects of the discipline prior to the timing of decisions regarding advanced or fellowship training. This part of the Core stage focuses on less complex cases and lower volumes of cases, and includes the following (or its longitudinal equivalent):*
 - *3 blocks in abdomen and pelvis*
 - *1 block in acute radiology (e.g., emergency, trauma)*
 - *2 blocks in breast imaging*
 - *1 block in cardiac imaging*
 - *2 blocks in chest imaging*
 - *2 blocks in MSK*
 - *3 blocks in neuroimaging/head and neck*
 - *1 block in nuclear medicine*
 - *1 block in obstetric/gynecologic US*
 - *2 blocks in pediatric radiology*
 - *2 blocks in US*
 - *2 blocks in vascular/interventional imaging*
 - *The second part of the Core stage includes more complex cases and higher caseloads, and includes*
 - *3 blocks in abdomen and pelvis*
 - *2 blocks in breast imaging*
 - *2 blocks in chest imaging*
 - *1 block in the community setting*
 - *3 blocks in MSK*
 - *3 blocks in neuroimaging/head and neck*
 - *1 block in nuclear medicine*
 - *1 block in obstetric/gynecologic US*
 - *2 blocks in pediatrics*
 - *1 block in vascular/interventional imaging*
- *6 blocks in Transition to Practice*

No more than 16 blocks, including not more than 3 blocks during the TTP stage, in any one domain of Diagnostic Radiology practice within the duration of training.

**One block is equal to 4 weeks*

Guidance for postgraduate medical education offices

The stages of the Competence Continuum in Diagnostic Radiology are generally no longer than

13 blocks for Transition to Discipline

10 blocks for Foundations of Discipline

45 blocks for Core of Discipline

6 blocks for Transition to Practice

Total duration of training – 65 blocks

**One block is equal to 4 weeks*

This document is to be reviewed by the Specialty Committee in Diagnostic Radiology by December 31, 2023.

Drafted – Specialty Committee – February 2021

Approved – Specialty Standards Review Committee – March 2021