

*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)**

*The focus of this initial stage is the orientation of new trainees to the policies, protocols, resources, and facilities of the program and the institution(s), including laboratory safety and issues of privacy and confidentiality. During this stage, residents will participate in basic specimen handling and microscopy and demonstrate an understanding of clinicopathologic correlation.*

### **Required training experiences (TTD stage):**

#### 1. Clinical training experiences:

##### 1.1. Hematological Pathology

##### 1.1.1. Observation and participation in:

- 1.1.1.1. Sample process workflow, from consent through to procurement, analysis, and reporting, in all domains of hematopathology practice
- 1.1.1.2. Laboratory benchwork
- 1.1.1.3. Bone marrow procurement

##### 1.1.2. Orientation and instruction in:

- 1.1.2.1. Basic operation of a microscope
- 1.1.2.2. Köhler illumination
- 1.1.2.3. Blood, body fluid, and bone marrow morphology
- 1.1.2.4. Basic operation of clinical and laboratory information systems

##### 1.1.3. Participation in reporting of morphology testing

#### 2. Other training experiences:

##### 2.1. Orientation to the program, the institution, and the university

##### 2.1.1. Orientation to program, faculty, expectations, scheduling, after hours

- responsibilities, and formal teaching sessions
- 2.1.2. Orientation to Competence by Design and initiation of an electronic portfolio and logbook
- 2.1.3. Orientation to PGME office policies, procedures, and resources
- 2.1.4. Orientation to hospital policies and code of conduct
  
- 2.2. Orientation to hematological pathology services:
  - 2.2.1. Laboratory safety, including workplace hazardous materials information system (WHMIS) and personal protective equipment
  - 2.2.2. Laboratory areas corresponding to hematopathology practice domains
  - 2.2.3. Privacy and confidentiality requirements
  
- 2.3. Formal instruction in:
  - 2.3.1. Basic terminology in all hematopathology practice domains
  - 2.3.2. Normal and critical values of common hematopathology tests
  - 2.3.3. Process for consent for transfusion and bone marrow biopsy
  - 2.3.4. Transfusion medicine, including basis of serology, and indications for blood components and products
  - 2.3.5. Basic error and incident investigation, including the pre-analytical, analytical, and postanalytical approach

**Recommended training experiences (TTD stage):**

- 3. Clinical training experiences:
  - 3.1. Basic operation of digital imaging software
  
- 4. Other training experiences:
  - 4.1. Career planning
  - 4.2. Development of personal learning plan
  - 4.3. Establishment of a mentor relationship
  - 4.4. Focused experience providing early clinical and technical skills training (e.g., boot camp)

**Optional training experiences (TTD stage):**

- 5. Clinical training experiences:
  - 5.1. Participation in multidisciplinary rounds

6. Other training experiences:

6.1. Formal instruction in:

- 6.1.1. Basic differential diagnosis for anemias, cytopenias, and cytoses
- 6.1.2. Clinical hematologic emergencies, including febrile neutropenia and thrombotic thrombocytopenic purpura
- 6.1.3. Critical appraisal of literature
- 6.1.4. Introduction to research ethics and methodology
- 6.1.5. Professionalism, work-life balance, advocacy, and wellness
- 6.1.6. Quality systems, including proficiency testing and quality control

## **FOUNDATIONS OF DISCIPLINE (F)**

*The focus of this stage is the development of the knowledge and skills required to integrate clinical and laboratory information in the evaluation of disease processes. This includes assessing patients and performing select clinical diagnostic procedures. It also includes assessing laboratory samples and generating reports for routine diagnostic investigations, as well as advising on routine requests for blood components.*

### **Required training experiences (Foundations stage):**

1. Clinical training experiences:

1.1. Hematological Pathology

1.1.1. Hematology laboratory practice domains

- 1.1.1.1. Core hematology
- 1.1.1.2. Flow cytometry
- 1.1.1.3. Hemoglobinopathy and red cell disorders
- 1.1.1.4. Hemostasis
- 1.1.1.5. Morphology

1.1.2. Transfusion medicine service

1.1.3. Lymph node and other lymphoid tissue service

- 1.1.3.1. Gross dissection room
- 1.1.3.2. Immunohistochemistry laboratory

1.1.4. Preparation for multidisciplinary rounds, including tumour board, peer review, quality review, and/or lymphoma conference

1.1.5. After-hours coverage

- 1.2. Hematology, including clinic and/or inpatient
  - 1.2.1. Adult
  - 1.2.2. Pediatric
2. Other training experiences:
  - 2.1. Formal instruction in:
    - 2.1.1. Basic and clinical sciences of Hematological Pathology
    - 2.1.2. Clinical hematologic emergencies, including febrile neutropenia and thrombotic thrombocytopenic purpura
    - 2.1.3. Laboratory quality management system, including quality systems essentials, quality control, Westgard rules, and external proficiency testing
    - 2.1.4. Patient safety and continuous quality improvement (CQI)
    - 2.1.5. Professionalism, including in communication
    - 2.1.6. Research ethics
    - 2.1.7. Research methodology and statistics
  - 2.2. Attendance at transfusion committee meetings
  - 2.3. Critical appraisal activities, such as journal club
  - 2.4. Initiation of a scholarly research project, including identifying topic and supervisor
  - 2.5. Review with supervisor or mentor of their scholarly portfolio, including personal learning plan and career plan

**Recommended training experiences (Foundations stage):**

3. Clinical training experiences:
  - 3.1. Laboratory services:
    - 3.1.1. Molecular diagnostics
    - 3.1.2. Cytogenetics
  - 3.2. After-hours coverage of a hematology service
  - 3.3. Blood centre: Canadian Blood Services (CBS) or Héma-Québec
4. Other training experiences:
  - 4.1. Formal instruction in:
    - 4.1.1. Methods of teaching and assessment
    - 4.1.2. Application of laboratory standards and guidelines

4.1.3. Laboratory and blood product stewardship

4.1.4. Informatics

4.2. Attendance at local, national and/or international continuing medical education activities

**Optional training experiences (Foundations stage):**

5. Clinical training experiences:

5.1. Human leukocyte antigen (HLA) laboratory

**CORE OF DISCIPLINE (C)**

*In this stage, residents build on the skills and knowledge of the previous stages to provide laboratory clinical consultations and manage diagnostic and ancillary testing for cases, including generating complete and diagnostically accurate reports. Trainees at this stage will take on additional responsibility for after-hours coverage, quality management, presentations at multidisciplinary conferences, and scholarly work.*

**Required training experiences (Core stage):**

1. Clinical training experiences:

1.1. Hematological Pathology

1.1.1. Hematology laboratory practice domains

1.1.1.1. Core hematology

1.1.1.2. Flow cytometry

1.1.1.3. Hemoglobinopathy and red cell disorders

1.1.1.4. Hemostasis

1.1.1.5. Molecular diagnostics

1.1.1.6. Morphology

1.1.2. Transfusion medicine service

1.1.3. Lymph node and other lymphoid tissue service

1.1.4. HLA laboratory

1.1.5. Cytogenetics

1.1.6. Point of Care Testing (POCT)

1.1.7. Hematology laboratory in a community hospital setting

1.1.8. After-hours coverage

- 1.2. Adult hematology
    - 1.2.1. Inpatient service, ward, and consultation
    - 1.2.2. Clinic
    - 1.2.3. Hematopoietic stem cell transplant (HSCT) and cellular therapy service
    - 1.2.4. Interprofessional rounds
  
  - 1.3. Pediatric hematology/oncology
    - 1.3.1. Inpatient service
    - 1.3.2. Clinic
    - 1.3.3. Interprofessional rounds
  
  - 1.4. Blood centre: CBS or Héma-Québec
  - 1.5. Participation at multidisciplinary rounds, including tumour board, peer review, quality review, and lymphoma conference
2. Other training experiences:
- 2.1. Formal instruction in
    - 2.1.1. Benign and malignant hematologic disease
    - 2.1.2. Laboratory techniques and automation
    - 2.1.3. Laboratory management and quality systems
    - 2.1.4. Continuous quality improvement
    - 2.1.5. Laboratory and blood product stewardship
    - 2.1.6. Bioethics
    - 2.1.7. Informatics and data science
    - 2.1.8. Professional skills including CV maintenance and interview skills
  
  - 2.2. Provision of formal and informal teaching of junior learners
  - 2.3. Critical appraisal activities, such as journal club
  - 2.4. Participation in continuous quality improvement activities
  - 2.5. Presentation of a completed scholarly research project

**Recommended training experiences (Core stage):**

3. Clinical training experiences:
  - 3.1. Cellular therapy laboratory
  - 3.2. Adult apheresis service

4. Other training experiences:
  - 4.1. Participation in professional associations
  - 4.2. Participation in laboratory inspections or accreditations
  - 4.3. Attendance at a national or international conference relevant to Hematological Pathology

**Optional training experiences (Core stage):**

5. Clinical training experiences:
  - 5.1. Tissue banking
  - 5.2. Clinical immunology service
  - 5.3. Immunology-related laboratories
  - 5.4. Anesthesiology
  - 5.5. Public health
  - 5.6. Medical microbiology laboratory
  - 5.7. Private hematology laboratory services
  - 5.8. Pediatric HSCT and cellular therapy service
  - 5.9. Maternal-fetal medicine, including observation of intra-uterine transfusion
  - 5.10. After-hours coverage of the adult hematology service
  
6. Other training experiences:
  - 6.1. Formal instruction in
    - 6.1.1. Physician leadership
    - 6.1.2. Wellness and work life balance
  
  - 6.2. Participation as chief resident for the Hematological Pathology training program
  - 6.3. Participation in basic science research
  - 6.4. Presentation of a completed quality improvement project

## **TRANSITION TO PRACTICE (TTP)**

*The focus of this stage is the consolidation of skills required to lead daily operations of the laboratory and independently manage a full caseload across the breadth of hematological pathology practice. Residents will also be responsible for the supervision of junior learners and sharing expertise in hematological pathology at multidisciplinary meetings.*

### **Required training experiences (TTP stage):**

1. Clinical training experiences:
  - 1.1. Hematological Pathology, in the role of junior attending<sup>1</sup>
    - 1.1.1. Breadth of hematology laboratory domains:
      - 1.1.1.1. Core hematology
      - 1.1.1.2. Flow cytometry
      - 1.1.1.3. Hemoglobinopathy and red cell disorders
      - 1.1.1.4. Hemostasis
      - 1.1.1.5. Morphology
    - 1.1.2. Transfusion medicine service
    - 1.1.3. After-hours coverage
2. Other training experiences:
  - 2.1. Formal instruction in the requirements of continuing professional development and maintenance of competence
  - 2.2. Structured teaching, supervision, and assessment of other learners, including hematological pathology or hematology residents
  - 2.3. Presentations at formal academic or research sessions

### **Recommended training experiences (TTP stage):**

3. Clinical training experiences:
  - 3.1. Individualized and/or enhanced skills acquisition related to individual interest, career plan, and/or community needs, within the home institution or in other settings

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<sup>1</sup> "Junior attending" means that the resident assumes responsibility for service delivery and for supervision and education of other learners, with as much independence as permitted by competence, law, and hospital policy.

4. Other training experiences:
  - 4.1. Formal instruction in practice management topics:
    - 4.1.1. Contract negotiation
    - 4.1.2. Human resources
    - 4.1.3. Budget
    - 4.1.4. Financial planning
  - 4.2. Participation in provincial and/or national societies and committees
  - 4.3. Formal training in physician leadership development

**Optional training experiences (TTP stage):**

5. Other training experiences:
  - 5.1. Orientation to academic development and the promotion pathway

**CERTIFICATION REQUIREMENTS**

Royal College certification in Hematological Pathology requires all of the following:

1. Successful completion of the Royal College examination Hematological Pathology; and
2. Successful completion of the Royal College Hematological Pathology Portfolio.

**NOTES**

The Hematological Pathology 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.

**Alternative Route to Certification**

Individuals who are eligible for Royal College certification in Hematology, Pediatric Hematology/Oncology, Anatomical Pathology, or General Pathology may be eligible for an accelerated course of training leading to certification in Hematological Pathology, based on the achievement of competencies relevant to both disciplines. Assessments of the achievement of relevant competencies will be made on an individual basis by the accepting Hematological Pathology program director and the associated postgraduate medical education office, following the principles of the Royal College Credentials policy for Competence by Design.

**Guidance for residents and programs regarding accelerated training for Hematology, Pediatric Hematology/Oncology, Anatomical Pathology, and General Pathology residents in training or graduates**

1. It is strongly recommended that early in their Hematology, Pediatric Hematology/Oncology, Anatomical Pathology, or General Pathology training, individuals who intend to pursue training in Hematological Pathology contact the program directors of both their current program and the Hematological Pathology program to declare their intention and discuss how to tailor their training.
2. Relevant professional activities and training experiences during Hematology, Pediatric Hematology/Oncology, Anatomical Pathology, or General Pathology will be reviewed on an individual basis by the accepting Hematological Pathology program and its postgraduate medical education office and can be credited towards achievement of competence in Hematological Pathology.
3. Transition to Discipline in the Hematological Pathology program can be used to verify and document achievement of Foundations and selected Core Hematological Pathology EPAs and to create an individualized curriculum. If acceptable to the hematology, pediatric hematology/oncology, anatomical pathology, or general pathology program director, the final stages of training in those disciplines could be used for this purpose as well.
4. Achievement of competence can be demonstrated with an individually tailored assessment plan, since it may not be feasible for these trainees to undergo the number of observations mandated in the current iteration of the EPAs.

**MODEL DURATION OF TRAINING**

Progress in training occurs through demonstration of competence and advancement through the stages of the Competence Continuum. Hematological Pathology is planned as a four-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 Hematological Pathology's suggested course of training, for the purposes of planning learning experiences and schedules, is as follows:

- 2- 3 months in Transition to Discipline
- 9-12 months in Foundations of Discipline
- 24-27 months in Core of Discipline
- 6-12 months in Transition to Practice

Guidance for postgraduate medical education offices:

The stages of the Competence Continuum in Hematological Pathology are generally no longer than:

- 3 months for Transition to Discipline
- 12 months for Foundations of Discipline
- 27 months for Core of Discipline
- 12 months for Transition to Practice
- Total duration of training – 4 years

*This document is to be reviewed by the Specialty Committee in Hematological Pathology by December 2023.*

**APPROVED** – Specialty Standards Review Committee – April 2021