

2009

**EDITORIAL REVISION – MARCH 2015
VERSION 1.3**

This document applies to those who begin training on or after July 1st, 2009.

DEFINITION

Hematology is that branch of medicine concerned with the clinical and laboratory investigation, diagnosis and medical management of diseases of the blood and blood-forming tissues.

GOALS

Upon completion of training, a resident is expected to be a competent specialist in Hematology capable of assuming a consultant's role in the subspecialty. The resident must acquire a working knowledge of the theoretical basis of the subspecialty, including its foundations in the basic medical sciences and research.

Only candidates certified by the Royal College of Physicians and Surgeons of Canada in Internal Medicine may be eligible for certification in Hematology.

Residents must demonstrate the requisite knowledge, skills, and attitudes for effective patient-centred care and service to a diverse population. In all aspects of specialist practice, the graduate must be able to address ethical issues of gender, sexual orientation, age, culture, beliefs, and ethnicity in a professional manner.

HEMATOLOGY COMPETENCIES

At the completion of training, the resident will have acquired the following competencies and will function effectively as a:

Medical Expert

Definition:

As Medical Experts, Hematologists integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centred care. Medical Expert is the central physician Role in the CanMEDS framework.

Key and Enabling Competencies: Hematologists are able to...

1. Function effectively as consultants, integrating all of the CanMEDS Roles to provide optimal, ethical and patient-centred medical care

- 1.1. Perform a consultation, including the presentation of well-documented assessments and recommendations in oral, written and/or electronic form, in response to a request from another health care professional
- 1.2. Demonstrate effective use of all CanMEDS competencies relevant to Hematology
 - 1.2.1. Apply lifelong learning skills of the Scholar Role to implement a personal program to keep up-to-date, and enhance areas of professional competence
 - 1.2.2. Contribute to the enhancement of quality care and patient safety in their practice, integrating the available best evidence and best practices
- 1.3. Identify and appropriately respond to relevant ethical issues arising in hematological patient care
- 1.4. Demonstrate the ability to prioritize professional duties when faced with multiple patients and problems
- 1.5. Demonstrate compassionate and patient-centred care
- 1.6. Recognize and respond to the ethical dimensions in medical decision-making
- 1.7. Demonstrate medical expertise in situations other than patient care

2. Establish and maintain clinical knowledge, skills and behaviours appropriate to their practice:

- 2.1. Apply knowledge of the clinical, socio-behavioural, and fundamental biomedical sciences relevant to benign and malignant hematological disorders
 - 2.1.1. Describe normal and disordered hematopoiesis, including changes related to age from the fetus to the elderly
 - 2.1.2. Demonstrate an understanding of genetics and cytogenetics pertaining to Hematology
 - 2.1.3. Describe mechanisms of oncogenesis
 - 2.1.4. Describe the principles of cancer epidemiology, staging and prognostic factors
 - 2.1.5. Describe the mechanisms of action of chemotherapeutic agents, targeted agents and radiation
 - 2.1.6. Describe the principles of molecular testing including the polymerase chain reaction (PCR)
 - 2.1.7. Describe normal and disordered immune function
 - 2.1.8. Describe the normal and disordered pathways of hemostasis
 - 2.1.9. Describe the normal and disordered red cell structure and function

- 2.1.10. Describe the red blood cell and platelet antigen systems and the principles of transfusion medicine
- 2.1.11. Describe iron metabolism
- 2.1.12. Describe the Human Leucocyte Antigen (HLA) system
- 2.1.13. Demonstrate basic knowledge of lymph node and splenic pathology
- 2.1.14. Demonstrate an awareness of the common hematological disorders occurring in childhood
- 2.1.15. Demonstrate knowledge of physiologic changes and hematological disorders occurring in pregnancy and post-partum
- 2.1.16. Describe the principles of laboratory testing including automated blood cell counters, flow cytometry and coagulation assays

2.2. Interpret blood films, bone marrow aspirates and biopsies

3. Perform a complete and appropriate assessment of a patient

- 3.1. Identify and effectively explore issues to be addressed in a patient encounter, including the patient's context and preferences
- 3.2. Elicit a history that is relevant, clear, concise and accurate to context and preferences for the purposes of diagnosis, management, health promotion, and disease prevention
- 3.3. Perform a focused physical examination that is relevant and accurate for the purposes of diagnosis, management, health promotion, and disease prevention
- 3.4. Diagnose patients appropriately using currently accepted diagnostic criteria
- 3.5. Evaluate diseases appropriately using currently accepted staging systems and prognostic indices
- 3.6. Select medically appropriate investigative methods in a resource-effective and ethical manner
- 3.7. Demonstrate effective clinical problem solving and judgment to address patient problems, including interpreting available data and integrating information to generate differential diagnoses and management plans

4. Use preventive and therapeutic interventions effectively

- 4.1. Implement an effective management plan in collaboration with a patient and their family
- 4.2. Demonstrate effective, appropriate, and timely application of preventive and therapeutic interventions relevant to the Hematological practice including:
 - 4.2.1. Vaccination and/or immunization
 - 4.2.2. Transfusion
 - 4.2.3. Chemotherapy
 - 4.2.4. Antibody therapy and other targeted therapy

OBJECTIVES OF TRAINING IN HEMATOLOGY (2009)

- 4.2.5. Radiation
 - 4.2.6. Immunosuppressive agents
 - 4.2.7. Anticoagulants, thrombolytic agents, and hemostatic agents
 - 4.2.8. Stem cell transplantation including patient assessment, donor selection, stem cell collection and infusion, and management of complications including graft-versus-host disease and infections
 - 4.2.9. Apheresis
 - 4.2.10. Supportive care including antiemetics, growth factors, antibiotics, and analgesics
- 4.3. Obtain appropriate informed consent for therapies, including transfusion and chemotherapy
 - 4.4. Manage late complications of therapy including recognition of the challenges faced by cancer survivors
 - 4.5. Ensure patients receive appropriate end-of-life care
 - 4.6. Manage the following in a timely, logical, ethical, and efficient manner:
 - 4.6.1. Qualitative and quantitative disorders of:
 - 4.6.1.1. Red blood cells
 - 4.6.1.2. Neutrophils
 - 4.6.1.3. Eosinophils, basophils, and monocytes
 - 4.6.1.4. Lymphocytes
 - 4.6.2. Monoclonal gammopathy
 - 4.6.3. Lymphadenopathy
 - 4.6.4. Splenomegaly and splenic dysfunction
 - 4.6.5. Quantitative and qualitative disorders of platelets
 - 4.6.6. Bleeding disorders (congenital and acquired)
 - 4.6.7. Thrombotic disorders (congenital and acquired)
 - 4.6.8. Complications of central venous catheters
 - 4.6.9. Disorders of iron metabolism including iron overload
 - 4.6.10. Allo-immune and autoimmune cytopenias
 - 4.6.11. Transfusion reactions
 - 4.6.12. Patients with known or suspected Hematological malignancies including:
 - 4.6.12.1. Lymphoproliferative disorders
 - 4.6.12.2. Leukemias
 - 4.6.12.3. Plasma cell dyscrasias
 - 4.6.12.4. Other Hematological malignancies

4.6.13. Patients with known or suspected stem cell disorders including:

4.6.13.1. Myeloproliferative neoplasia disorder

4.6.13.2. Aplastic anemia

4.6.13.3. Myelodysplasia

4.6.14. Hematological emergencies

5. Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic

5.1. Demonstrate effective, appropriate, and timely performance of diagnostic procedures relevant to Hematology, including:

5.1.1. Bone marrow aspirate and biopsy

5.1.2. Lumbar puncture

5.1.3. Proficiency in hematologic microscopy

5.2. Demonstrate effective, appropriate, and timely performance of therapeutic procedures relevant to their practice

5.2.1. Administration of intrathecal chemotherapy

5.2.2. Supervision of therapeutic phlebotomy

5.2.3. Supervision of transfusion and infusion of concentrates

5.2.4. Supervision of chemotherapy

5.3. Obtain appropriate informed consent for all procedures

5.4. Describe and discuss potential adverse effects

5.5. Ensure adequate followup is arranged for procedures performed

6. Seek appropriate consultation from other health professionals, recognizing the limits of their expertise

6.1. Demonstrate insight into their own limits of expertise

6.2. Demonstrate effective, appropriate, and timely consultation of another health professional as needed for optimal patient care

6.3. Arrange appropriate followup care services for patients and their families/caregivers

Communicator

Definition:

As *Communicators*, Hematologists effectively facilitate the doctor-patient relationship and the dynamic exchanges that occur before, during, and after the medical encounter.

Key and Enabling Competencies: Hematologists are able to...

1. Develop rapport, trust, and ethical therapeutic relationships with patients and their families

- 1.1. Recognize that being a good communicator is a core clinical skill for physicians, and that effective physician-patient communication can foster patient satisfaction, physician satisfaction, adherence and improved clinical outcomes
- 1.2. Establish positive relationships with patients and their families that are characterized by understanding, trust, respect, honesty and empathy
- 1.3. Respect patient confidentiality, privacy and autonomy
- 1.4. Listen effectively
- 1.5. Be aware of and responsive to nonverbal cues
- 1.6. Facilitate a structured clinical encounter effectively
- 1.7. Communicate effectively with patients and their families about end of life issues, including the transition from treatment with curative intent to palliative/supportive therapy and withdrawal of therapy such as transfusions and/or chemotherapy

2. Accurately elicit and synthesize relevant information and perspectives of patients, their families, colleagues, and other professionals

- 2.1. Gather information about a disease and about a patient's beliefs, concerns, expectations and illness experience, including acceptance of blood products
- 2.2. Seek out and synthesize relevant information from other sources, such as a patient's family, caregivers, and other professionals, while respecting individual privacy and confidentiality

3. Convey relevant information and explanations accurately to patients and families, colleagues and other professionals

- 3.1. Deliver information to patients and families, colleagues, and other professionals in a humane manner and in such a way that it is understandable and encourages discussion and participation in decision-making

4. Develop a common understanding on issues, problems, and plans with patients, families, and other professionals to develop a shared plan of care

- 4.1. Identify and explore problems to be addressed from a patient encounter effectively, including the patient's context, responses, concerns, and preferences

- 4.2. Respect diversity and differences, including but not limited to the impact of gender, religion and cultural beliefs on decision-making
- 4.3. Encourage discussion, questions, and interaction in the encounter
- 4.4. Engage patients, families, and relevant health professionals in shared decision-making to develop a plan of care
- 4.5. Address challenging communication issues effectively, including but not limited to obtaining informed consent, delivering bad news, and addressing anger, confusion and misunderstanding

5. Convey effective oral and written information about a medical encounter

- 5.1. Maintain clear, accurate, and appropriate records (e.g., written or electronic) of clinical encounters and plans
- 5.2. Present oral reports of clinical encounters and plans

6. Present medical information to the public or media about a medical issue

Collaborator

Definition:

As *Collaborators*, Hematologists effectively work within a health care team to achieve optimal patient care.

Key and Enabling Competencies: Hematologists are able to...

1. Participate effectively and appropriately in an interprofessional health care team

- 1.1. Describe the Hematologist's roles and responsibilities to other professionals
- 1.2. Describe the roles and responsibilities of other professionals within the Hematology team including laboratory technologists and physicians, nurses, social workers and pharmacists
- 1.3. Recognize and respect the diverse roles, responsibilities, and competencies of other professionals in relation to their own
- 1.4. Work with others to assess, plan, provide and integrate care for individuals and groups of patients
- 1.5. Work with others to assess, plan, provide and review other tasks, such as research problems, educational work, program review or administrative responsibilities
- 1.6. Participate effectively in interprofessional teams in the laboratory as well as ambulatory and in-patient settings

- 1.7. Enter into interdependent relationships with other professions for the provision of quality care
- 1.8. Describe the principles of team dynamics
- 1.9. Respect team ethics, including confidentiality, resource allocation, and professionalism
- 1.10. Demonstrate leadership in a health care team, as appropriate

2. Work with other health professionals effectively to prevent, negotiate, and resolve interprofessional conflict

- 2.1. Demonstrate a respectful attitude towards other colleagues and members of an interprofessional team
- 2.2. Work with other professionals to prevent conflicts
- 2.3. Respect differences and the scopes of practice of other professions
- 2.4. Reflect on their own differences, misunderstandings, and limitations that may contribute to interprofessional tension
- 2.5. Reflect on interprofessional team function
- 2.6. Employ collaborative negotiation to resolve conflicts and address misunderstandings

Manager

Definition:

As *Managers*, Hematologists are integral participants in health care organizations, organizing sustainable practices, making decisions about allocating resources, and contributing to the effectiveness of the health care system.

Key and Enabling Competencies: Hematologists are able to...

1. Participate in activities that contribute to the effectiveness of their health care organizations and systems

- 1.1. Work collaboratively with others in their organizations
- 1.2. Participate in systemic quality process evaluation and improvement, including patient safety initiatives in clinical care and the laboratory
- 1.3. Describe the structure and function of the health care system as it relates to Hematology practice, including cancer care systems, Canadian Blood Services/HemaQuebec, and Ministries of Health
- 1.4. Describe principles of health care financing, including physician remuneration, budgeting and organizational funding

2. Manage their practice and career effectively

- 2.1. Set priorities and manage time to balance patient care, practice requirements, outside activities and personal life
- 2.2. Manage a practice including finances and human resources
- 2.3. Implement processes to ensure personal practice improvement
- 2.4. Employ information technology appropriately for patient care

3. Allocate finite health care resources appropriately

- 3.1. Demonstrate an understanding of the importance of just allocation of health care resources, balancing effectiveness, efficiency, and access with optimal patient care, particularly with high cost therapies, laboratory investigations, and blood products
- 3.2. Apply evidence and management processes for cost-appropriate care for individual Hematology patients, and at a systems level

4. Serve in administration and leadership roles, as appropriate

- 4.1. Chair or participate effectively in committees and meetings
- 4.2. Lead or implement change in health care
- 4.3. Plan relevant elements of health care delivery, such as work schedules

Health Advocate

Definition:

As *Health Advocates*, Hematologists responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations.

Key and Enabling Competencies: Hematologists are able to...

1. Respond to individual patient health needs and issues as part of patient care

- 1.1. Identify the health needs of an individual patient and take a patient-centred approach to investigations and management
- 1.2. Identify opportunities for advocacy, health promotion, and disease prevention with individuals to whom they provide care, including access to drugs and blood products

2. Respond to the health needs of the communities that they serve

- 2.1. Describe the practice communities that they serve
- 2.2. Identify opportunities for advocacy, health promotion and disease prevention in the communities that they serve, and respond appropriately

- 2.3. Demonstrate an appreciation of the possibility of competing interests between the communities served and other populations

3. Identify the determinants of health for the populations that they serve

- 3.1. Identify the determinants of health of the population, including barriers to access to care and resources, especially financial barriers
- 3.2. Identify vulnerable or marginalized populations within those served and respond appropriately

4. Promote the health of individual patients, communities, and populations

- 4.1. Describe an approach to implementing a change in a determinant of health of the populations they serve
- 4.2. Describe how public policy impacts on the health of the populations served
 - 4.2.1. Promote preventative strategies including thromboprophylaxis and vaccination programs
 - 4.2.2. Promote blood safety
- 4.3. Identify points of influence in the health care system and its structure
- 4.4. Describe the ethical and professional issues inherent in health advocacy, including altruism, social justice, autonomy, integrity, and idealism
- 4.5. Demonstrate an appreciation of the possibility of conflict inherent in their role as a health advocate for a patient or community with that of manager or gatekeeper
- 4.6. Describe the role of the medical profession in advocating collectively for health and patient safety

Scholar

Definition:

As *Scholars*, Hematologists demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application and translation of medical knowledge.

Key and Enabling Competencies: Hematologists are able to...

1. Maintain and enhance professional activities through ongoing learning

- 1.1. Describe the principles of maintenance of competence
- 1.2. Describe the principles and strategies for implementing a personal knowledge management system
- 1.3. Recognize and reflect on learning issues in practice

- 1.4. Conduct personal practice audits
- 1.5. Pose an appropriate learning question
- 1.6. Access and interpret the relevant evidence
- 1.7. Integrate new learning into practice
- 1.8. Evaluate the impact of any change in practice
- 1.9. Document the learning process

2. Critically evaluate medical information and its sources, and apply this appropriately to practice decisions

- 2.1. Describe the principles of critical appraisal
- 2.2. Critically appraise retrieved evidence in order to address a clinical question
- 2.3. Integrate critical appraisal conclusions into clinical care

3. Facilitate the learning of patients, families, students, residents, other health professionals, the public and others, as appropriate

- 3.1. Describe principles of learning relevant to medical education
- 3.2. Identify collaboratively the learning needs and desired learning outcomes of others
- 3.3. Select effective teaching strategies and content to facilitate others' learning
- 3.4. Deliver effective lectures or presentations
- 3.5. Assess and reflect on teaching encounters
- 3.6. Provide effective feedback
- 3.7. Describe the principles of ethics with respect to teaching

4. Contribute to the development, dissemination, and translation of new knowledge and practices

- 4.1. Describe the principles of research and scholarly inquiry
- 4.2. Describe the principles of research ethics
- 4.3. Pose a scholarly question
- 4.4. Conduct a systematic search for evidence
- 4.5. Select and apply appropriate methods to address the question
- 4.6. Participate in a scholarly research, quality assurance, or educational project relevant to Hematology, demonstrating primary responsibility for the following elements of the project:
 - 4.6.1. Development of the hypothesis, which must include a comprehensive literature review
 - 4.6.2. Development of the protocol for the scholarly project

- 4.6.3. Preparation of a grant application if applicable
- 4.6.4. Development of the research ethics proposal if applicable
- 4.6.5. Interpretation, synthesis, and presentation of the results

Professional

Definition:

As *Professionals*, Hematologists are committed to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour.

Key and Enabling Competencies: Hematologists are able to...

1. Demonstrate a commitment to their patients, profession, and society through ethical practice

- 1.1. Exhibit appropriate professional behaviours in practice, including honesty, integrity, commitment, compassion, respect and altruism
- 1.2. Demonstrates ability to meet deadlines and to be punctual
- 1.3. Demonstrate a commitment to delivering the highest quality care and maintenance of competence
- 1.4. Recognize and appropriately respond to ethical issues encountered in practice and/or research, including but not limited to disclosure of error and interactions with pharmaceutical industries
- 1.5. Identify, declare, and manage perceived, potential, and actual conflicts of interest, including interactions with pharmaceutical industries
- 1.6. Recognize the principles and limits of patient privacy and confidentiality, as defined by professional practice standards and the law
- 1.7. Maintain appropriate boundaries with patients

2. Demonstrate a commitment to their patients, profession, and society through participation in profession-led regulation

- 2.1. Demonstrate knowledge and an understanding of professional, legal, and ethical codes of practice
- 2.2. Fulfil the regulatory and legal obligations required of current practice
- 2.3. Demonstrate accountability to professional regulatory bodies
- 2.4. Recognize and respond appropriately to others' unprofessional behaviours in practice
- 2.5. Participate in peer review

3. Demonstrate a commitment to physician health and sustainable practice

- 3.1. Balance personal and professional priorities to ensure personal health and a sustainable practice
- 3.2. Recognize the impact of caring for the dying patient
- 3.3. Strive to heighten personal and professional awareness and insight
- 3.4. Recognize other professionals in need and respond appropriately

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