



MEDICAL COUNCIL OF CANADA    LE CONSEIL MÉDICAL DU CANADA

# Updates to the MCC Objectives for the Qualifying Examinations

APRIL 2017

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## MEDICAL EXPERT

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As medical experts, physicians apply medical knowledge, clinical skills and professional behaviours when providing patient-centered care.

### Description

Physicians possess a defined body of knowledge, clinical skills, procedural skills and professional behaviours, which are directed to effective patient-centered care. They apply these competencies to collect and interpret information, to make appropriate clinical decisions and to carry out diagnostic, therapeutic and preventive/health promotion interventions (see MCC Blueprint). They do so within the boundaries of their discipline, personal expertise, the health care setting and the patient's preferences and context. Their care is characterized by up-to-date, ethical and resource-efficient clinical practice and is delivered through effective communication in partnership with patients, other health care providers and the community. The role of medical expert is central to the work of physicians and draws on the competencies included in the roles of communicator, collaborator, leader and manager, health advocate, scholar and professional.

## LEADER/MANAGER

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As leaders and managers, physicians are integral participants in health care organizations. They organize and manage personal and professional practices, and contribute to the delivery of high-quality health care through clinical, administrative, and other activities.

### Description

Physicians are engaged with co-workers, resources, and organizations and are involved with processes and policies. They must also balance work with their personal lives. Physicians require the ability to set priorities, effectively execute tasks collaboratively with colleagues, and make appropriate choices when allocating scarce health care resources. Physicians also assume leadership roles in patient safety and quality improvement, aimed at providing the highest quality health care.

The 2015 CanMEDs role revisions were changed by the Royal College from Manager to Leader, reducing the number and broadening the scope of the objectives to include an emphasis on quality assurance and patient safety. In order to be effective and actionable in terms of both personal and professional activities, the MCC has retained the Manager objectives, while adding objectives on quality assurance and patient safety.

### Objectives

1. Effectively manage practice and career
  - 1.1. As resident and in practice, fulfill the obligations and responsibilities of patient care including, where relevant, finances and human resources
  - 1.2. Abide by the regulatory requirements for medical office practice (maintenance of patient records, guidelines concerning prescriptions, especially narcotics)
  - 1.3. Demonstrate leadership on health care teams, contributing to high quality patient care by enhancing patient safety
  - 1.4. Avoid conflict of interest by maintaining ethical relations with industry, suppliers, and other medically-relevant groups
  - 1.5. Employ information technology as appropriate for patient care and practice management
  - 1.6. Utilize strategies to balance professional and personal life and to access available support services if professional competence is compromised
  - 1.7. Engage in place strategies for self-improvement and maintenance of competence
  - 1.8. Set priorities and manage time effectively, both in professional and personal life
2. Allocate health care resources effectively
  - 2.1. Utilize all health resources (e.g. human, diagnostic, therapeutic) prudently and economically

- 2.2. Utilize all health resources equitably and without bias or discrimination
- 2.3. Manage scarce health resources in an ethical and informed manner, balancing individual and societal needs
3. Participate appropriately in the health system
  - 3.1. Know the fundamental principles of the Canada Health Act
  - 3.2. Describe the structure, function, and financing of the Canadian health system at the federal, provincial/territorial, and local levels
  - 3.3. Describe the roles of physicians in developing and supporting the health system (including health and prevention, advocacy groups, regulatory bodies, professional associations)
  - 3.4. Contribute to the delivery of high quality health services by:
    - 3.4.1. Advocating for and participating in quality improvement
    - 3.4.2. Promoting and practicing a culture of patient safety

## PROFESSIONAL

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Physicians play a unique societal role as professionals, requiring a distinct body of knowledge, skills and behaviours dedicated to the health of individuals, communities and society. As such, they are accountable to themselves, their patients and families and society. They are guided by codes of ethics, commitments and accountability that form the basis of an understanding between the physician and society. In turn, society grants physicians the privilege of professionally-led regulation.<sup>1</sup>

### Description

"Physician professionalism comprises a set of attitudes, knowledge and skills based on clinical and/or medical administrative competence, communication skills, ethics, societal and legal duties, all of which result in judicious behaviours that demonstrate a commitment to excellence, respect, integrity, empathy, accountability and altruism."<sup>2</sup>

### Objectives

1. Accountability to self
  - 1.1. Maintain competence
    - 1.1.1. Evaluate personal professional competence
    - 1.1.2. Recognize personal limitations of competence
    - 1.1.3. Pursue ongoing personal education to maintain competence, based on personal evaluation and/or peer review
  - 1.2. Practice without impairment from substance, ill health or other incapacity
2. Accountability to patients and their families
  - 2.1. Provide care that meets or exceeds expected professional standards
  - 2.2. Accept responsibility for ensuring continuity of care
  - 2.3. Maintain patient confidentiality
  - 2.4. Describe and implement current ethical and legal aspects of the consent and capacity process
  - 2.5. Demonstrate a commitment to patient safety and quality improvement
    - 2.5.1. Recognize that providing quality care includes attention to the specific psychosocial needs of patients

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<sup>1</sup> Cruess, S.R., Johnston, S., & Cruss, R.L. (2004). "Profession": a working definition for medical educators. *Teaching and Learning in Medicine: An International Journal*, 16 (1), 74-76 as cited in *The Royal College of Physicians and Surgeons of Canada. (2005). Professional. CanMEDS 2005 Framework. Retrieved August 25, 2009 from The CanMEDS 2005 Physician Competency Framework.*

<sup>2</sup> MCC working definition, March 3, 2009

- 2.5.2. Make timely, full and honest disclosure to the patient and/or family in situations where a patient safety incident occur
    - 2.5.3. Encourage and assist others in the prevention and disclosure of patient safety incidents
  - 2.6. Describe the organization of practice
3. Accountability to the profession
  - 3.1. Abide by the profession's rules, regulations and ethical codes
  - 3.2. Assume responsibility for one's own actions
  - 3.3. Report a colleague's actions or behaviours as required or appropriate, using the applicable reporting mechanism
  - 3.4. Maintain a professional relationship with third parties and avoid situations where a conflict of interest may arise (drug company interactions, business interests)
  - 3.5. Maintain confidentiality of professional documents (test materials, student evaluations)
4. Integrity
  - 4.1. Behave according to the highest standards of integrity, including ethical conduct, honesty, compassion and dedication to the welfare of patients and society
  - 4.2. Observe appropriate and/or legal boundaries in relationships with patients and health professionals
  - 4.3. Avoid abuse of privilege (e.g., staff to nurse, resident to student)
  - 4.4. Serve as a source of knowledge and/or skill; and support and teach others whenever appropriate
  - 4.5. Recognize, understand and act appropriately with respect to complex ethical issues including:
    - euthanasia
    - medically assisted dying
    - maternal-fetal conflict
    - abortion
    - advanced reproductive technology
    - genetic testing and manipulation
5. Altruism
  - 5.1. Put the needs of others before one's own as the foundation of professional behaviour
  - 5.2. Serve, when necessary, beyond normal duty or expectations, keeping in mind essential personal/professional balance

## BRIEF RESOLVED UNEXPLAINED EVENT (BRUE) (104-1)

*Previously known as apparent life-threatening event [ALTE]*

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### Rationale

Life-threatening events involving infants are devastating to parents, caregivers and health care workers alike. Brief resolved unexplained events (BRUE) are characterized by a non-specific, resolved and episodic presentation, including any of the following: cyanosis or pallor; absent, decreased or irregular breathing; marked change in tone (hypertonia or hypotonia; and/or altered responsiveness). The etiology of these events is heterogeneous for a majority of infants; a specific cause may be identified following a focused history, physical examination and targeted investigations.

### Causal Conditions *(list not exhaustive)*

An underlying etiology may be found in over half of infants presenting with BRUE. For those infants where a cause cannot be identified through a focused clinical evaluation and/or initial investigations, stratification for risk/probability of an occult pathology should guide further investigations and monitoring interventions. Possible causes of BRUE include:

1. Misinterpretation of normal physiology in an infant (e.g., transient choking with rapid feeding or with coughing during feeding, periodic breathing/ respiratory pauses of 5-15 seconds)
2. Infectious disease (e.g., respiratory infection, sepsis, meningitis, encephalitis)
3. Cardiopulmonary abnormalities (e.g., central or obstructive sleep apnea, arrhythmia)
4. Neurologic disease (e.g., epilepsy)
5. Child abuse (e.g., intentional suffocation, non-accidental head injury)
6. Metabolic disease (e.g., inborn error of metabolism)
7. Other (e.g., toxic ingestion, poisoning)

### Key Objectives

Given the presentation of an infant with a BRUE, the candidate will evaluate possible risk factors and/or causes and initiate an appropriate management plan including investigations, interventions and follow-up. If an etiology is not identified through the initial evaluation, the candidate will determine whether the severity of the BRUE warrants more extensive investigation through the process of risk categorization.

The candidate will also counsel the infant's parents/caregivers and family.

### Enabling Objectives

Given an infant presenting with a BRUE, the candidate will:

1. List and interpret critical clinical findings, including those derived from

- 1.1. A detailed history of the event
- 1.2. An evaluation of maternal, infant and environmental risk factors
- 1.3. The physical examination and/or direct observation
2. List and interpret critical investigations based upon the clinical features (e.g., viral studies, chest x-ray)
3. Construct an effective initial management plan, including
  - 3.1. Admission for observation
  - 3.2. Counselling and support for the parents' emotional needs, clarifying the difference between BRUE and sudden infant death syndrome (SIDS)
  - 3.3. Referral of the parents, if further investigations or interventions are required (e.g., high-risk BRUE, cardiopulmonary resuscitation training for recurrent events)
  - 3.4. Referral for specialized care/investigations, if required (e.g., metabolic testing, cardiac evaluation)

## OBSESSIVE-COMPULSIVE (OCD) AND RELATED DISORDERS (123)

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### Rationale

OCD is characterized by the presence of obsessions and/or compulsions. OCD and other disorders with similar manifestations (body dysmorphic disorder, hoarding, trichotillomania, etc.) are a significant source of morbidity and impaired quality of life. OCD is frequently comorbid with other disorders (see causal conditions).

### Causal Conditions *(list not exhaustive)*

1. Adverse childhood experiences (e.g., abuse, behavioural inhibition)
2. Genetic neurological dysfunction
3. Other psychiatric disorders (e.g., tic disorder, anxiety disorders, depression, substance use disorder)
4. Other medical conditions (e.g., infections)

### Key Objectives

Given a patient with obsessions and/or compulsive behaviour, the candidate will diagnose the condition, along with its severity and possible complications. Particular attention should be paid to possible etiology and coexisting conditions.

### Enabling Objectives

Given an individual with an obsessive and/or compulsive behaviour

1. List and interpret critical clinical findings, including those derived from:
  - 1.1. A thorough history aimed at estimating the severity of the disorder and other comorbid or etiologic factors
  - 1.2. A physical examination aimed at ruling out physical complications (e.g., dermatologic)
2. List and interpret critical investigations, including where appropriate:
  - 2.1. Drug screening
  - 2.2. Neurological imaging
  - 2.3. Infectious agents
3. Construct an effective management plan, including:
  - 3.1. Determination as to whether pharmacological intervention (e.g., SSRI medication) is indicated in this case
  - 3.2. Referral for specialized care, if required (e.g., psychological services, family counselling)
  - 3.3. Anticipation of potential psychosocial impact

## ORAL CONDITIONS (60)

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### Rationale

Although many diseases can affect the oral cavity, odontogenic infection (dental caries and periodontal infections) is the most common one. Apart from discomfort, infections may result in serious complications. Ruling out oral carcinoma is important.

### Causal Conditions (*list not exhaustive*)

1. Congenital (e.g., cleft palate)
2. Acquired
  - 2.1. Infection (e.g., candidiasis, gonococcal infection)
  - 2.2. Malignancy (e.g., adenocarcinoma, leukoplakia)
  - 2.3. Poor oral hygiene (e.g., caries, periodontal disease)
  - 2.4. Trauma (e.g., abuse)
  - 2.5. Toxic ingestion
  - 2.6. Xerostomia (e.g., age, medications)
  - 2.7. Systemic diseases (e.g., lichen planus, Behçet's disease)

### Key Objectives

Given a patient with an oral condition, the candidate will diagnose the likely cause, severity and complications, and will initiate an appropriate management plan. In particular, the candidate will determine whether the patient requires specialized care.

### Enabling Objectives

Given a patient with an oral condition, the candidate will

1. List and interpret critical clinical findings, including
  - 1.1. Signs of potential malignancy
  - 1.2. Signs of infection
2. List and interpret critical investigations, including those required to exclude suspected systemic disease
3. Construct an effective initial management plan, including
  - 3.1. Counsel and educate the patient and/or the caregivers regarding oral hygiene and/or diet (e.g., sugar-containing drinks for children)
  - 3.2. Counsel on smoking cessation and alcohol abuse
  - 3.3. Refer for specialized care, if necessary

## SKIN AND INTEGUMENT CONDITIONS (38)

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### Rationale

Skin disorders (including rashes, tumours and ulcers) are among the most common reasons for seeking medical attention from primary care physicians and specialists such as dermatologists. Integument conditions (including hair and nails) are also common. These disorders can be due to local diseases or may indicate an underlying systemic condition. Patients who are affected can present with psychological distress.

### Causal Conditions (*list not exhaustive*)

1. Rashes
  - 1.1. Macular
  - 1.2. Papular
  - 1.3. Vesiculobullous
  - 1.4. Pustular
2. Tumours
  - 2.1. Benign
  - 2.2. Premalignant
  - 2.3. Malignant (e.g., melanoma)
3. Ulcers
  - 3.1. Vascular
  - 3.2. Infectious
  - 3.3. Autoimmune
  - 3.4. Pressure ulceration
  - 3.5. Tumours
  - 3.6. Toxic
4. Nail presentations
  - 4.1. Local nail problems
  - 4.2. Associated with an underlying condition
5. Hair presentations
  - 5.1. Alopecia
    - 5.1.1. Scarring
    - 5.1.2. Non-scarring

5.2. Hirsutism

5.3. Hypertrichosis

## Key Objectives

Given a patient with a skin or an integument condition, the candidate will diagnose the cause, severity and complications, and will initiate an appropriate management plan. In particular, it is important to determine whether a condition is benign, malignant or associated with an underlying systemic condition.

## Enabling Objectives

Given a patient with a skin or an integument condition, the candidate will

1. List and interpret critical clinical findings, including those derived from
  - 1.1. An appropriate history (e.g., drug and medical history)
  - 1.2. A general physical examination and an assessment of the skin characteristics (e.g., morphology and distribution)
2. List and interpret critical investigations, including
  - 2.1. Those which differentiate benign from more serious disorders (e.g., biopsy, fungal scraping)
  - 2.2. Further investigations, as required (e.g., diagnostic imaging or laboratory tests)
3. Construct an effective management plan, including
  - 3.1. Prescribe an appropriate topical and/or systemic therapy
  - 3.2. Refer if appropriate
  - 3.3. Offer counselling and education, including prevention of future skin conditions (e.g., sun exposure)

## BLEEDING, BRUISING (15-1)

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### Rationale

Some bleeding or bruising, although common, is idiopathic and/or self-limiting (e.g., epistaxis, post-traumatic bruising). However, excessive or spontaneous bleeding/bruising may point to a serious underlying disease, in which case urgent management may be required. Note that bleeding related to major organ systems is covered under other objectives (e.g., *Lower Gastrointestinal Bleeding*, *Upper Gastrointestinal Bleeding*, *Hemoptysis*, *Hematuria*).

### Causal Conditions (*list not exhaustive*)

1. Localized bleeding (e.g., epistaxis, laceration)
2. Hemostasis disorders
  - 2.1. Platelet or blood vessel disorders (e.g., von Willebrand disease, collagen disorder, medication-induced)
  - 2.2. Coagulation disorders (e.g., factor VIII or vitamin K deficiency, fibrinolysis)

### Key Objectives

Given a patient with bleeding/bruising, the candidate will diagnose the cause, severity and complications, and will initiate an appropriate management plan, recognizing that some presentations are self-limited.

### Enabling Objectives

Given a patient with a localized or other bleeding/bruising, the candidate will

1. List and interpret relevant clinical findings, including results of an appropriate history and physical examination performed with particular attention to:
  - 1.1. Airway and hemodynamic status
  - 1.2. Differentiation between various disorders of hemostasis and self-limited and/or idiopathic bleeding (e.g., epistaxis)
2. List and interpret relevant investigations (e.g., complete blood count, coagulation studies)
3. Construct an effective management plan, including:
  - 3.1. Initiate immediate management of bleeding (e.g., nasal packing, iv resuscitation if hemodynamically unstable)
  - 3.2. Provide counselling/education on how to prevent future episodes
  - 3.3. Make a determination as to whether specialized care is required

## ABDOMINAL/PELVIC MASSES, INCLUDING ORGANOMEGALY (2)

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### Rationale

Abdominal or pelvic masses may be found on physical examination or on imaging. Upon detection of a mass, decisions regarding diagnosis, investigation and/or monitoring are required.

### Causal Conditions *(list not exhaustive)*

1. Organomegaly
  - 1.1. Hepatomegaly
  - 1.2. Splenomegaly
  - 1.3. Other (e.g., renal)
2. Abdominal masses (e.g., aneurysm, GI tumours)
3. Pelvic masses
  - 3.1. Gynecological
    - 3.1.1. Ovarian (benign or malignant)
    - 3.1.2. Tubal (e.g., ectopic pregnancy)
    - 3.1.3. Uterine (e.g., pregnancy, leiomyoma)
  - 3.2. Bladder/prostate (e.g., urinary retention, malignancy)
4. Other (e.g., vascular aneurysm, abdominal wall)

### Key Objectives

Given a patient with an abdominal or a pelvic mass, the candidate will diagnose the cause, significance, severity and complications. In particular, the candidate will recognize those situations where urgent intervention is required.

### Enabling Objectives

Given a patient with an abdominal or a pelvic mass, the candidate will

1. Conduct a thorough history and physical examination, including
  - 1.1. The detection of relevant signs and symptoms (e.g., possible pregnancy, weight loss, pain)
2. List and interpret critical investigations (e.g., laboratory tests, imaging)
3. Construct an effective initial management plan, including:
  - 3.1. Determine whether immediate intervention or specialized care is required
  - 3.2. Outline a management plan for cases where monitoring may be indicated

## NON-ARTICULAR MUSCULOSKELETAL PAIN (50-3)

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### Rationale

Non-articular musculoskeletal pain, though common, is rarely due to life-threatening or damaging conditions. Often referred to as "soft tissue" pain, it is a common cause for concern, which frequently prompts those affected to seek medical advice.

### Causal Conditions (*list not exhaustive*)

1. Generalized pain
  - 1.1. Acute pain (e.g., viral infections)
  - 1.2. Chronic pain (e.g., fibromyalgia, polymyalgia rheumatica)
2. Localized pain
  - 2.1. Acute
    - 2.1.1. Trauma (see also Bone and Joint Injuries)
    - 2.1.2. Infection (e.g., osteomyelitis, necrotizing fasciitis)
    - 2.1.3. Vascular (e.g., compartment syndrome, sickle cell disease)
  - 2.2. Chronic
    - 2.2.1. Mechanical (e.g., tendinopathy, bursitis)
    - 2.2.2. Vascular (e.g., intermittent claudication)
    - 2.2.3. Neoplastic
    - 2.2.4. Neuropathic
    - 2.2.5. Complex regional pain syndrome

### Key Objectives

Given a patient with musculoskeletal pain, the candidate will be able to differentiate symptoms arising from bone, joint, muscle, nerve or vascular causes. The candidate will be able to further classify the likely underlying pathology and determine if urgent action is required.

### Enabling Objectives

Given a patient with musculoskeletal pain, the candidate will

1. List and interpret critical clinical findings, including:
  - 1.1. Likely anatomic and pathogenic pain mechanisms
  - 1.2. Determination as to whether the pain represents a problem requiring urgent or immediate investigation
  - 1.3. Trigger, if any

- 1.4. Impact on function
- 1.5. Occupational and recreational history
2. List and interpret critical investigations, including appropriate laboratory investigations and other tests
  - 2.1. Initial investigations (e.g., x-rays)
  - 2.2. Further or specialized investigations (e.g., doppler ultrasound, magnetic resonance imaging, nerve conduction studies), if indicated
3. Construct an effective management plan, including:
  - 3.1. Begin urgent or acute management of serious problems
  - 3.2. Provide patient education and counselling regarding self-limited or benign conditions
  - 3.3. Provide counselling regarding appropriate return to activities
  - 3.4. Refer for specialized care, if necessary

# CEREBROVASCULAR ACCIDENT AND TRANSIENT ISCHEMIC ATTACK (STROKE) (41)

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## Rationale

Transient ischemic attack (TIA) and cerebrovascular accident (CVA) consist in the acute loss of arterial blood flow to a part of the brain or brainstem, resulting in temporary or permanent loss of function.

TIA and CVA are among the most common causes of death and disability in Canada. Lifestyle and risk factor modifications are ways of preventing these disorders, which can be treated with urgent medical or surgical intervention in some cases.

## Causal Conditions *(list not exhaustive)*

1. Ischemia
  - 1.1. Thrombotic
  - 1.2. Embolic
2. Hemorrhage
  - 2.1. Intracerebral and cerebellar
  - 2.2. Subarachnoid

## Key Objectives

Given a patient with acute neurological deficits (e.g., aphasia, amaurosis fugax), the candidate will obtain an appropriate history and perform a physical examination leading to the possible diagnosis of TIA or CVA, and take action. The candidate will recognize the need for preventive health care in order to decrease the risk of TIA or CVA.

## Enabling Objectives

Given a patient with risk factors for a TIA or CVA, the candidate will

1. List and interpret critical clinical findings, including results of a history and physical examination aimed at detecting an early pathology (e.g., bruits, hypertension) that is treatable or correctable

Given a patient with acute, intermittent or chronic neurological deficits, the candidate will

1. List and interpret critical clinical findings, including results of a history and physical examination aimed at determining whether TIA or CVA is a possible cause
2. List and interpret critical investigations, including
  - 2.1. Imaging (e.g., computed tomography)
  - 2.2. Laboratory testing (e.g., lipid profile)

3. Construct an effective management plan, including
  - 3.1. Proceed with acute or chronic medical and surgical interventions (e.g., blood pressure control)
  - 3.2. Refer for specialized services (e.g., rehabilitation, speech-language therapy)
  - 3.3. Anticipate medium and long-term complications (e.g., psychosocial impact, safety)

## WEAKNESS (not caused by cerebrovascular accident) (117)

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### Rationale

True weakness is abnormally decreased power of a muscle group, limb or in a more widespread distribution. It can be acute, subacute or chronic, and has a wide differential diagnosis. In young children, this may present as hypotonia. In its most severe form, it may present as paresis or paralysis and be accompanied by other neurologic or systemic symptoms. Since the causal condition may be life threatening or severely disabling in many cases, skill is required to approach the problem effectively.

### Causal Conditions (*list not exhaustive*)

1. Muscular causes
  - 1.1. Primary muscle disease
    - 1.1.1. Congenital (e.g., muscular dystrophy)
    - 1.1.2. Acquired (e.g., myositis, myasthenia)
  - 1.2. Secondary to other disease, drug or metabolic problem (e.g., steroids, hypokalemia, psychiatric illness)
2. Neurologic disease
  - 2.1. Peripheral nerve or motor neuron
    - 2.1.1. Congenital
    - 2.1.2. Acquired (e.g., Guillain-Barré, amyotrophic lateral sclerosis, diabetes)
  - 2.2. Central nervous system
    - 2.2.1. Malignant
    - 2.2.2. Infectious (e.g., encephalitis)
    - 2.2.3. Degenerative
    - 2.2.4. Autoimmune or Inflammatory (e.g., multiple sclerosis)
    - 2.2.5. Traumatic
    - 2.2.6. Vascular  
See [Cerebrovascular Accident and Transient Ischemic Attack \(Stroke\)](#)
    - 2.2.7. Other (e.g., genetic, cataplexy)

### Key Objectives

Given a patient exhibiting weakness not caused by a cerebrovascular accident, the candidate will differentiate fatigue from inhibition and pain. In particular, the candidate will determine whether the condition is due to muscle, nerve or upper neurological disorder, characterize the distribution and/or localize the lesion, and determine the underlying cause.

## Enabling Objectives

Given a patient with weakness not caused by a cerebrovascular accident, the candidate will

1. List and interpret clinical findings, including results of an appropriate history and physical examination aimed at determining
  - 1.1. The source of the weakness (e.g., muscle, peripheral nerve)
  - 1.2. The distribution of the weakness
  - 1.3. The most likely pathology or cause of the weakness (e.g., vascular, inflammatory, malignant)
2. List and interpret critical investigations, including
  - 2.1. Laboratory data (e.g., creatine kinase, genetic testing)
  - 2.2. Nerve conduction studies and electromyography
  - 2.3. Imaging, including computed tomography or magnetic resonance
3. Construct an effective management plan, including
  - 3.1. Perform acute medical or surgical intervention (e.g., correction of electrolytes abnormalities)
  - 3.2. Treat underlying disease or correct causative factors (e.g., control of diabetes, cessation of steroids or statins)
  - 3.3. Take measures to support the patient and to retain function (e.g., physiotherapy, occupational therapy)
  - 3.4. Anticipate medium- and long-term complications of the disorder (e.g., psychosocial impact, safety)

## PREVENTIVE HEALTH ENCOUNTER / HEALTH ADVICE SESSION (74)

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### Rationale

A periodic health encounter/preventive health advice session represents an opportunity for the prevention or early detection of health-related problems. The nature of the encounter will vary in timing and frequency, depending on the age, sex, occupation and psychosocial background of the patient. The encounter may take the form of an in-person visit, electronic or phone encounters, or delegated acts by other health care team members.

### Causal conditions (*list not exhaustive*)

1. All ages
  - 1.1. Injury prevention (e.g., noise control, seat belts, bicycle helmets)
  - 1.2. Lifestyle modification (e.g., physical activity, smoking prevention/cessation, sun exposure)
  - 1.3. Immunization (see objective on Immunization; no. 74-2)
2. Infant and child
  - 2.1. Nutrition
  - 2.2. Growth
  - 2.3. Development
  - 2.4. Behaviours
  - 2.5. Other (e.g., hearing, amblyopia)
3. Adolescence
  - 3.1. Sexual activity (e.g., contraception, sexually transmitted infections [STI])
4. Young adult
  - 4.1. Female reproductive health (e.g., Papanicolaou test, STI screening, folic acid)
5. Middle-aged adult
  - 5.1. Cardiovascular health risks (e.g., blood glucose, blood pressure, lipid profile)
  - 5.2. Cancer screening (e.g., breast, colon, prostate, skin)
  - 5.3. Osteoporosis
6. Older adult
  - 6.1. Fracture and fall prevention (e.g., osteoporosis screening)
  - 6.2. Nutrition
  - 6.3. Dementia screening

## Key Objectives

Given a patient presenting for a preventive health encounter/health advice session, the candidate will determine the patient's risks for age and sex-specific conditions in order to guide history, physical examination, screening investigations and counselling.

## Enabling Objectives

Given a patient presenting for a preventive health encounter/preventive health advice session, the candidate will

1. Perform an appropriate history and physical examination based on the patient's age, sex and background
2. List and interpret appropriate investigations, including:
  - 2.1. Results of evidence-based screening investigations specific to age and sex (e.g., fasting glucose, mammography)
3. Construct an effective management plan, including
  - 3.1. Communicate effectively with the patient to reach a common ground regarding goals related to disease prevention and risk reduction;
  - 3.2. Recommend proven prevention strategies (e.g., smoking cessation, regular exercise)
  - 3.3. Incorporate the preventive health principles into the care of the patient in case of a chronic disease

## PREVENTION OF VENOUS THROMBOSIS (15-2)

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### Rationale

Venous thrombosis is a major cause of morbidity and mortality. Physicians should use best evidence to lower the risk of this disease.

### Causal Conditions *(list not exhaustive)*

1. Stasis (e.g., hospitalization, travel)
2. Endothelial injury (e.g., previous thrombosis)
3. Hypercoagulability (e.g., drugs, cancer, inherited or acquired conditions)

### Key Objectives

Given a patient who may be at risk of venous thrombosis, the candidate will recognize the risk, take further measures to assess the likelihood of occurrence and use best evidence to intervene.

### Enabling Objectives

Given a patient at possible risk of thrombosis, the candidate will

1. Take an appropriate history and perform a physical examination to confirm the need for concern
2. List and interpret the appropriate investigations indicated for that patient including
  - 2.1. Hematologic or coagulation tests
  - 2.2. Investigations for other underlying conditions
3. Construct an effective initial management plan, including
  - 3.1. Non-pharmacologic measures (e.g., anti-embolic stockings)
  - 3.2. Anti-coagulation
4. Promote systemic measures for consistent prevention of thrombosis in a clinical setting

## FEVER AND HYPERTHERMIA (107-1)

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### Rationale

Fever is an elevation of body temperature above the normal variation, which is induced by cytokine activation. Fever is often due to infection but can be associated with malignancy, inflammatory disease or other causes. In contrast, hyperthermia is an elevation in core body temperature due to thermoregulation failure.

Elevated body temperature is a common presentation which can be due to a mild, self-limited illness or to a life-threatening medical emergency.

Fever in an infant/child (107-3) is described in a separate objective.

### Causal Conditions *(list not exhaustive)*

1. Infectious causes
  - 1.1. Bacteria (e.g., group A Streptococcus, Escherichia coli)
  - 1.2. Viruses (e.g., influenza, measles)
  - 1.3. Parasites (e.g., malaria)
  - 1.4. Fungi (e.g., cryptococcus)
2. Inflammatory and malignant conditions (e.g., systemic lupus erythematosus, lymphoma)
3. Drugs (e.g., bleomycin, interferon)
4. Increased heat load (e.g., heat stroke)
5. Diminished heat dissipation (e.g., medications and illicit drugs)
6. Factitious

### Key Objectives

Given a patient with elevated body temperature, the candidate will diagnose the cause, severity and complications, and will initiate appropriate management. In particular, the candidate will rule out life-threatening conditions (e.g., meningococcal meningitis).

### Enabling Objectives

Given a patient with fever, the candidate will:

1. List and interpret critical clinical findings, including those derived from
  - 1.1. A relevant history
    - Infectious symptoms (e.g., productive cough, dysuria, diarrhea)
    - Travel history (e.g., geographic location and timing of trip, use of chemoprophylaxis)
    - Host factors (e.g., immunocompromised state due to hiv, previous splenectomy)

- Non-infectious symptoms (e.g., weight loss, night sweats, arthralgias)
  - Environmental factors (e.g., heat exposure, exertion)
  - Drug therapy (e.g., corticosteroids)
- 1.2. A relevant physical examination aiming at determining the cause
2. List and interpret critical investigations, including
    - 2.1. Targeted initial investigations, if required, to determine the cause (e.g., chest radiograph, urinalysis, blood cultures)
    - 2.2. Additional investigations for fever of unknown origin (e.g., bone marrow biopsy, echocardiogram)
3. Construct an effective initial management plan, including
    - 3.1. Initiation of measures to reduce body temperature (e.g., acetaminophen, evaporative cooling)
    - 3.2. Treatment of the underlying cause (e.g., antimicrobials)
    - 3.3. Determination as to whether specialized care is required
    - 3.4. Determination as to whether further preventative measures such as immunizations are necessary

## IMMUNIZATION (74-2)

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### Rationale

Immunization has either reduced or eradicated many infectious diseases and has improved overall health the world over. Recommended immunization schedules are constantly updated as new vaccines become available.

### Key Objectives

The candidate must be able to recommend an appropriate schedule of vaccinations, discuss with patients/parents the risks and benefits of vaccination and be able to identify patients in need of vaccination who do not come in for routine visits (e.g., when presenting for assessment of new illness).

### Enabling Objectives

Given a patient needing vaccination, the candidate will

1. List and interpret clinical findings, including
  - 1.1. An immunization history as well as any contraindication to vaccination (e.g., anaphylaxis, immunosuppression)
2. Construct an effective initial management plan, including
  - 2.1. Obtain informed consent
  - 2.2. Give patients/parents the information they need to manage possible vaccine reactions
  - 2.3. Outline an appropriate immunization schedule, including modifications to the usual schedule for special circumstances (e.g., catch-up schedules, immunocompromised patients)
  - 2.4. Counsel patients/parents who refuse vaccinations
  - 2.5. Report adverse immunization reactions, as required
  - 2.6. Reach out to population segments specifically at risk (e.g., the elderly, transplant and asplenic patients)

## BREAST MASSES AND ENLARGEMENT (10-1)

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### Rationale

While breast masses are common and considering the prevalence of breast cancer in women, it is important to note that not all breast masses are cancerous. Breast cancer screening is an important tool for the detection of the disease in its early stages. Breast enlargement may be due to physiological causes or an underlying mass effect.

### Causal Conditions *(list not exhaustive)*

1. Malignant breast masses
2. Non-malignant breast masses
  - 2.1. Fibrocystic change
  - 2.2. Breast infections
  - 2.3. Associated with lactation
3. Gynecomastia
  - 3.1. Physiological (newborn, adolescence, elderly)
  - 3.2. Pathological (e.g., testosterone deficiency or increased estrogen production, medications)

### Key Objectives

Given a patient with a breast mass or gynecomastia, the candidate will diagnose the cause, severity and urgency, and will initiate an appropriate management plan.

### Enabling Objectives

Given a patient with a breast mass or gynecomastia, the candidate will

1. List and interpret critical clinical findings, including
  - 1.1. Results of an appropriate history and physical examination (e.g., drug use)
  - 1.2. Identified risk factors for malignancy
2. List and interpret critical investigations (e.g., imaging, biopsy)
3. Construct an effective management and prevention plan, including:
  - 3.1. Screening
  - 3.2. Treatment
  - 3.3. Referral, if necessary
  - 3.4. Follow-up assessment and support (e.g., genetic testing)

## BONE AND JOINT INJURIES (109-3)

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### Rationale

Bone and joint injuries are a frequent cause of musculoskeletal pain and may contribute to premature death. Major fractures and dislocations may be associated with other injuries which may take priority. Unexplained fractures in children should alert physicians to the possibility of abuse.

### Causal Conditions *(list not exhaustive)*

1. High-energy trauma
2. Non-accidental injuries (e.g., domestic violence)
3. Falls
4. Pathologic conditions predisposing to injury (e.g., osteoporosis, ligamentous laxity)

### Key Objectives

Given a patient with acute onset of pain or deformity in the spine or extremities, the candidate will determine whether the condition is due to a bone or a joint injury, assess the severity of the injury, identify possible complications and construct an appropriate management plan. The candidate will recognize situations where the patient may have an increased risk of fracture.

### Enabling Objectives

Given a patient with acute onset of pain or deformity in the spine or extremities, the candidate will

1. List and interpret critical clinical findings, including
  - 1.1. Mechanism of injury and, when required, exclusion of other immediately life-threatening injuries through a targeted examination
  - 1.2. Specific site of injury
  - 1.3. Neurological and vascular status
  - 1.4. Signs and symptoms suggestive of abuse
  - 1.5. History of recurrent falls
  - 1.6. Risks of bone abnormalities and/or increased risk of falls or injury
  - 1.7. Signs of pathologic fractures
2. List and interpret critical investigations, including
  - 2.1. Appropriate imaging modalities as well as a bone density test
  - 2.2. Investigations for causes of osteoporosis, where appropriate

3. Conduct an effective initial management plan, including
  - 3.1. Apply an appropriate splint, sling or brace
  - 3.2. Restrict weight-bearing, when indicated
  - 3.3. Prescribe analgesics and anti-inflammatory medications, as required
  - 3.4. Refer to specialized care, if necessary
  - 3.5. Choose the correct treatment for prevention of fractures, including among pharmacological and non-pharmacological treatments
4. Provide follow-up care and address the following
  - 4.1. Duration of immobilization
  - 4.2. Return to work and/or normal activity
  - 4.3. Appropriate use of other health care professionals (e.g., physiotherapist, occupational therapist)
  - 4.4. Further treatment or referral for complications (e.g., complex regional pain syndrome, compartment syndrome)
  - 4.5. Factors affecting recovery from the injury (e.g., living situation, employment, nutrition, addiction, general health)

## SUDDEN INFANT DEATH SYNDROME (SIDS) (104)

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### Rationale

Sudden Infant Death Syndrome (SIDS) is a leading cause of death in infants between one month and one year of life. SIDS is defined as the sudden death of an infant, which remains unexplained after a complete clinical evaluation, including a complete autopsy and an examination of the death scene. Providing appropriate support to grieving parents is an important management step. Awareness of known risk factors for SIDS and proven preventive strategies is imperative.

### Causal Conditions (*list not exhaustive*)

By definition, the precise etiology of SIDS is currently unknown. Affected infants appear to have:

1. Underlying genetic or anatomic (e.g., brainstem abnormality) predisposition
2. A trigger event (e.g., maternal smoking, airflow obstruction)
3. Timing of 1. and 2. at a vulnerable stage of development

Risk factors for SIDS and effective protective factors are known.

#### 1. Risk factors:

##### 1.1. Maternal factors

- Young maternal age (less than 20 years)
- Maternal smoking during pregnancy
- Maternal alcohol and drug abuse during pregnancy
- Late or no prenatal care

##### 1.2. Infant factors

- Preterm birth and/or low birth weight
- Prone sleeping position
- Sleeping on a soft surface and/or with bedding accessories such as blankets and pillows
- Sibling of a SIDS victim

##### 1.3. Environmental factors

- Exposure to second hand smoking
- Bed sharing
- Overheating
- Swaddling

#### 2. Protective factors:

- Room sharing

- Pacifier use
- Breastfeeding
- Fan use
- Immunizations

## Key Objectives

Given the arrival of a new infant in a family, the candidate will provide preventive counselling to every parent and caregiver about the known risk factors and preventive factors for SIDS.

Given the presentation of an infant with sudden infant death (SID), the candidate will evaluate fully the possible risk factors and/or causes and initiate an appropriate management plan including a detailed clinical evaluation, a request for a complete autopsy and involvement of the medical examiner (coroner).

The candidate will also counsel the infant's parents/caregivers and family.

## Enabling Objectives

Given the arrival of a new infant in a family, the candidate will:

1. Counsel parents/caregivers about preventative measures (e.g., smoking cessation during pregnancy and during infancy, proper sleep attire/position of newborn)

Given an infant presenting with sudden unexpected infant death, the candidate will

1. List and interpret critical clinical findings, including those derived from
  - 1.1. A detailed history of the event
  - 1.2. An evaluation of maternal, infant and environmental risk factors
2. Include in the acute management a request for a complete autopsy and communication with the medical examiner
3. Effectively communicate the death of the infant to parents and families
4. Initiate bereavement support