

Effective for residents who enter training on or after July 1, 2020.

DEFINITION

Orthopedic surgery is that branch of surgery specializing in the study, diagnosis and treatment of diseases and disorders affecting the musculoskeletal system. Orthopedic means "straight child", in translation from its Greek root, reflecting the origins of the specialty in the care of children's deformity.

ORTHOPEDIC SURGERY PRACTICE

Orthopedic surgeons provide care to patients, ranging in age from birth to older adults, across the entire spectrum of musculoskeletal injury and disease. Patients may present with conditions affecting any part of the skeletal anatomy including bones, joints, muscles, ligaments, tendons, and nerves. This includes congenital conditions, traumatic bone and soft tissue injuries, and disease processes such as arthritis, infection, tumour and metabolic bone disease.

Orthopedic surgeons employ medical, physical, rehabilitative, and surgical methods of treatment to improve or restore the functioning of the musculoskeletal system and quality of life. They provide preoperative, operative, and postoperative management for patients undergoing elective and emergency surgical procedures. They also provide non-operative management, including preventive and therapeutic interventions. They provide primary and secondary assessment and definitive operative and non-operative care for patients with injuries due to trauma. The procedural skills of Orthopedic Surgery include open and arthroscopic procedures. Post-operative recovery may lead to transition of care back to the patient's primary care provider or referral to rehabilitation services. Long term surveillance may be required for some conditions.

Orthopedic surgeons practice in a variety of settings, including community and academic hospitals, private offices or clinics, and ambulatory care centres. The practice of any individual orthopedic surgeon will depend on their location and its resources, the needs of that community/setting, and the other surgical and nonsurgical specialists working in that location.

Orthopedic surgeons work with specialists from other surgical and medical disciplines to achieve the best clinical outcomes by engaging in shared decision-making with an emphasis on optimal patient outcomes. The care they provide is delivered by working effectively with other health care professionals including nurses, physiotherapists, occupational therapists, and social workers.

The breadth of Orthopedic Surgery, and the available treatment options, has led to the delineation of distinct clinical areas of the specialty: general orthopedics, trauma surgery, musculoskeletal oncology, foot and ankle surgery, hip and knee surgery, adult spine surgery, upper limb and hand surgery, sports medicine, and pediatric orthopedics. Some orthopedic surgeons undertake advanced training and/or focus their practice in one or more of these areas.

ORTHOPEDIC SURGERY COMPETENCIES

Medical Expert

Definition:

As *Medical Experts*, orthopedic surgeons integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centred care. Medical Expert is the central physician Role in the CanMEDS Framework and defines the physician's clinical scope of practice.

Key and Enabling Competencies: Orthopedic surgeons are able to...

1. Practise medicine within their defined scope of practice and expertise

- 1.1. Demonstrate a commitment to high-quality care of their patients
- 1.2. Integrate the CanMEDS Intrinsic Roles into their practice
- 1.3. Apply the competencies of Surgical Foundations
- 1.4. Apply knowledge of the clinical and biomedical sciences relevant to Orthopedic Surgery
 - 1.4.1. Embryology, growth and development of the musculoskeletal system and the pathogenesis of congenital anomalies
 - 1.4.2. Anatomy and physiology of the musculoskeletal system
 - 1.4.3. Gross and microscopic pathology of musculoskeletal conditions
 - 1.4.4. Microbiology of infections of the musculoskeletal system, including bones, joints, soft tissues, and prosthetic devices
 - 1.4.5. Principles of antimicrobial prophylaxis and treatment, and antibiotic stewardship
 - 1.4.6. Biomechanics of normal and abnormal gait
 - 1.4.7. Mechanisms of injury
 - 1.4.8. Principles of biomechanics as they relate to management and reconstruction of the axial and appendicular musculoskeletal system
 - 1.4.8.1. Orthotics and prosthetics

- 1.4.9. Principles of oncology as they relate to neoplasms of the musculoskeletal system
 - 1.4.9.1. Risk factors, incidence and prevalence, genetic predisposition, growth and dissemination patterns, and prognostic variables
 - 1.4.9.2. Investigation, including imaging, for diagnosis, staging, and follow-up
 - 1.4.9.3. Staging of neoplasms using the tumour-node-metastasis (TNM) staging system or other relevant classification system, and applicable predictive and prognostic indices
 - 1.4.9.4. Treatment options including the role of surgery, radiation therapy, and systemic therapy
- 1.4.10. Clinical features, including symptoms, signs, natural history, prognosis, and treatment options of conditions in the following categories of practice:
 - 1.4.10.1. Musculoskeletal trauma of spine, pelvis, and upper and lower extremities
 - 1.4.10.2. Musculoskeletal oncology of spine, pelvis, and upper and lower extremities
 - 1.4.10.3. Foot and ankle
 - 1.4.10.4. Hip and knee
 - 1.4.10.5. Spine
 - 1.4.10.6. Upper limb and hand
 - 1.4.10.7. Sports medicine
 - 1.4.10.8. Pediatric orthopedics
- 1.4.11. Principles of imaging modalities, techniques, and contrast agents, including benefits and risks, for the care of patients with musculoskeletal conditions
- 1.4.12. Principles of radiation safety and protection for both patients and staff
- 1.4.13. Principles of therapeutic modalities used in Orthopedic Surgery
 - 1.4.13.1. Clinical pharmacology, including indications, mechanism(s) of action, side effects, and dosages of drugs and agents
 - 1.4.13.1.1. Pain control as it relates to musculoskeletal pain and narcotic stewardship
 - 1.4.13.2. Blood products and recombinant factors, including risks and benefits and timing of use
 - 1.4.13.3. Ultrasound as it applies to management of orthopedic conditions
 - 1.4.13.4. Surgical and non-surgical treatments for orthopedic conditions, including indications, common complications, and effectiveness with respect to age, gender, and activity level

- 1.4.13.5. Bioprosthetic materials, including design, biomaterials, fixation and wear properties, and other factors affecting implant survival and function
- 1.4.13.6. Musculoskeletal regenerative medicine for soft tissue, bone, and cartilage
- 1.4.13.7. Mechanical or therapeutic treatments for the improvement of:
 - 1.4.13.7.1. Bone or soft tissue healing
 - 1.4.13.7.2. Cartilage regeneration
- 1.4.14. Principles of the management of musculoskeletal injuries in the context of polytrauma
- 1.4.15. Principles of arthroscopic surgery as applied to each joint
- 1.4.16. Principles of resurfacing or replacement as applied to each joint
- 1.4.17. Reconstructive surgical options and their advantages, disadvantages, and complications
- 1.4.18. Rehabilitation principles relevant to patients with musculoskeletal conditions and postoperative recovery
- 1.5. Perform appropriately timed clinical assessments with recommendations that are presented in an organized manner
- 1.6. Carry out professional duties in the face of multiple competing demands
- 1.7. Recognize and respond to the complexity, uncertainty, and ambiguity inherent in Orthopedic Surgery practice
 - 1.7.1. Recognize the limits of one's own professional competence and when to seek help or support

2. Perform a patient-centred clinical assessment and establish a management plan

- 2.1. Prioritize issues to be addressed in a patient encounter
 - 2.1.1. Recognize and accurately prioritize emergency conditions
 - 2.1.2. Prioritize among injuries in patients with polytrauma
- 2.2. Elicit a history, perform a physical exam, select appropriate investigations, and interpret their results for the purpose of diagnosis and management, disease prevention, and health promotion
 - 2.2.1. Gather a relevant clinical history for the presenting problem and any pre-existing medical and surgical conditions
 - 2.2.2. Identify cases suspicious for non-accidental trauma and perform a diagnostic evaluation

- 2.2.3. Assess the impact of the musculoskeletal condition on the patient's function and quality of life
- 2.2.4. Perform a physical examination relevant to the musculoskeletal presentation, including special tests, and interpret the clinical significance of the findings
- 2.2.5. Select investigations and interpret the results of the following:
 - 2.2.5.1. Joint aspiration and synovial fluid analysis
 - 2.2.5.2. Tissue biopsies
 - 2.2.5.3. Electromyography and nerve conduction studies
 - 2.2.5.4. Medical imaging as it pertains to musculoskeletal care
- 2.2.6. Synthesize clinical information to determine the differential and most likely diagnosis
- 2.3. Establish goals of care in collaboration with patients and their families¹, which may include slowing disease progression, treating symptoms, achieving cure, improving function, and palliation
 - 2.3.1. Establish realistic care outcomes and share concerns with the patient and their family about goals that are not felt to be achievable, in a constructive and respectful manner
 - 2.3.2. Ensure patients receive appropriate end-of-life care
- 2.4. Establish a patient-centred management plan
 - 2.4.1. Integrate clinical information into a comprehensive treatment plan
 - 2.4.2. Synthesize patient information to determine suitability for surgical or non-surgical management
 - 2.4.2.1. Recommend and plan the management approach to a surgical procedure
 - 2.4.2.2. Recommend and provide non-surgical treatment
 - 2.4.3. Formulate a plan for perioperative management, including timing, required equipment, implants, and support to optimize outcomes
 - 2.4.4. Provide supportive and postoperative management in the critical care setting and on the inpatient ward
 - 2.4.5. Provide appropriate follow-up care, including evaluation for rehabilitation

¹ Throughout this document, references to the patient's family are intended to include all those who are personally significant to the patient and are concerned with his or her care, including, according to the patient's circumstances, family members, partners, caregivers, legal guardians, and substitute decision-makers.

- 2.4.6. Provide initial and definitive management for conditions relevant to the categories of practice of Orthopedic Surgery, including:
 - 2.4.6.1. Musculoskeletal trauma
 - 2.4.6.2. Musculoskeletal oncology
 - 2.4.6.3. Foot and ankle
 - 2.4.6.4. Hip and knee
 - 2.4.6.5. Spine
 - 2.4.6.6. Upper limb and hand
 - 2.4.6.7. Sports medicine
 - 2.4.6.8. Pediatric orthopedics

3. Plan and perform procedures and therapies for the purpose of assessment and/or management

- 3.1. Determine the most appropriate procedures or therapies
- 3.2. Obtain and document informed consent, explaining the risks and benefits of, and the rationale for, a proposed procedure or therapy
 - 3.2.1. Recognize and address challenges arising in emergency situations and when patient capacity to provide consent is limited
- 3.3. Prioritize procedures or therapies, taking into account clinical urgency and available resources
- 3.4. Perform procedures in a skilful and safe manner, adapting to unanticipated findings or changing clinical circumstances
 - 3.4.1. Patient positioning, preparation and draping for surgery
 - 3.4.2. Diagnostic and therapeutic joint aspiration and injection
 - 3.4.3. Amputation
 - 3.4.4. Arthrodesis
 - 3.4.5. Arthroscopy
 - 3.4.6. Arthrotomy
 - 3.4.7. Bone graft harvesting techniques
 - 3.4.8. Osteotomy
 - 3.4.9. Removal of implants
 - 3.4.10. Surgical management of:
 - 3.4.10.1. Bone and soft tissue deficiencies
 - 3.4.10.2. Compartment syndromes
 - 3.4.10.3. Infections
 - 3.4.10.4. Malunion/nonunion

3.4.10.5. Nerve entrapment syndromes

Trauma

3.4.11. Technical skills of the advanced trauma life support (ATLS) protocol

3.4.12. Management of dislocations and simple and complex fractures

3.4.12.1. Plan and apply analgesia/anesthesia techniques pre- and post-operatively

3.4.12.2. Provide initial management of fractures and dislocations with appropriate reduction and splinting

3.4.12.3. Perform techniques of fracture fixation and soft tissue management for closed and open fractures

3.4.12.3.1. Closed reduction and appropriate splinting and follow-up

3.4.12.3.2. Debridement, stabilization, infection control, and timing of definitive management of open fractures

3.4.12.3.3. External fixation

3.4.12.3.4. Open reduction and internal fixation

3.4.12.3.5. Intramedullary nailing

3.4.12.3.6. Arthroplasty and arthrodesis

3.4.13. Surgical management of complications of trauma

Musculoskeletal oncology

3.4.14. Open biopsy of bone and/or soft-tissue lesions in consultation with a surgeon with musculoskeletal oncology expertise

3.4.15. Surgical management of metastatic disease in bone

3.4.16. Surgical treatment of common benign tumours

Foot and ankle

3.4.17. Local anesthetic blocks

3.4.18. Surgical management of

3.4.18.1. Arthritis involving ankle, subtalar, midfoot, and forefoot joints

3.4.18.2. Soft tissue disorders including tendons and ligaments

3.4.18.3. Deformity

3.4.18.4. Chondral injuries

3.4.18.5. Neuropathic foot

Hip and knee

- 3.4.19. Arthroplasty

Spine

- 3.4.20. Application of external spinal fixation devices, including tongs and halos
- 3.4.21. Lumbar laminectomy for urgent conditions
- 3.4.22. Primary lumbar discectomy
- 3.4.23. Primary posterior instrumented lumbar fusion

Upper limb and hand

- 3.4.24. Arthroplasty
- 3.4.25. Joint stabilization
- 3.4.26. Management of joint contractures
- 3.4.27. Tendon repair and reconstruction

Sports medicine

- 3.4.28. Repair or reconstruction of tendon pathology
- 3.4.29. Repair, reconstruction, and debridement of the following joints with bony or soft tissue pathology:
 - 3.4.29.1. Hip
 - 3.4.29.2. Knee
 - 3.4.29.3. Ankle
 - 3.4.29.4. Shoulder

Pediatric orthopedics

- 3.4.30. Application of:
 - 3.4.30.1. Skin and skeletal traction
 - 3.4.30.2. Pavlik harness
 - 3.4.30.3. Bracing of the spine
 - 3.4.30.4. Casts for fracture
 - 3.4.30.5. Hip spica cast
 - 3.4.30.6. Corrective foot casts
- 3.4.31. Surgical management of:
 - 3.4.31.1. Angular and rotational deformity

- 3.4.31.2. Biopsy for suspected pediatric neoplasia in consultation with an musculoskeletal oncology expert
- 3.4.31.3. Fractures unique to pediatric patients
- 3.4.31.4. Osteomyelitis
- 3.4.31.5. Septic arthritis including arthrogram and arthrotomy
- 3.4.31.6. Slipped capital femoral epiphysis

4. Establish plans for ongoing care and, when appropriate, timely consultation

- 4.1. Implement a patient-centred care plan that supports ongoing care, follow-up on investigations, response to treatment, and further consultation
 - 4.1.1. Recognize and manage complications of orthopedic conditions, interventions, and treatments
 - 4.1.2. Identify indications for consultation with other health care professionals
 - 4.1.2.1. Provide referral for advanced orthopedic procedures
 - 4.1.2.2. Identify indications for and timing of consultation with medical and/or radiation oncologists
 - 4.1.2.3. Identify indications for referral to rehabilitation specialists
 - 4.1.3. Provide follow-up on results of investigations and response to treatment

5. Actively contribute, as an individual and as a member of a team providing care, to the continuous improvement of health care quality and patient safety

- 5.1. Recognize and respond to medical errors, including patient safety incidents
- 5.2. Adopt strategies that promote patient safety and address human and system factors

Communicator

Definition:

As *Communicators*, orthopedic surgeons form relationships with patients and their families that facilitate the gathering and sharing of essential information for effective health care.

Key and Enabling Competencies: Orthopedic surgeons are able to...

1. Establish professional therapeutic relationships with patients and their families

- 1.1. Communicate using a patient-centred approach that encourages patient and family trust and autonomy and is characterized by empathy, respect, and compassion
 - 1.1.1. Recognize the emotional stress for patients and families faced with orthopedic conditions and their associated surgical management, particularly in the treatment of children and adolescents
- 1.2. Optimize the physical environment for patient and family comfort, dignity, privacy, engagement, and safety
- 1.3. Recognize when the perspectives, values, or biases of patients, patients' families, physicians, or other health care professionals may have an impact on the quality of care, and modify the approach to the patient and family accordingly
- 1.4. Respond to a patient and family's non-verbal behaviours to enhance communication
- 1.5. Manage disagreements and emotionally charged conversations
 - 1.5.1. Discuss advanced directives and end-of-life issues with patients and families
 - 1.5.2. Address concerns regarding suspicion of non-accidental trauma
- 1.6. Adapt to the unique needs and preferences of each patient and to each patient's clinical condition and circumstances
 - 1.6.1. Demonstrate effective, age-appropriate communication of treatment plans to pediatric patients
 - 1.6.2. Respond to challenges arising in patients with special needs, ensuring appropriate communication with patient and the family or public trustee to meet and achieve timely management in the interests of the patient

2. Elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families

- 2.1. Use patient-centred interviewing skills to effectively gather relevant biomedical and psychosocial information
- 2.2. Provide a clear structure for and manage the flow of an entire patient encounter
- 2.3. Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent

3. Share health care information and plans with patients and their families

- 3.1. Share information and explanations that are clear, accurate, and timely, while assessing for patient and family understanding

- 3.2. Disclose harmful patient safety incidents to patients and their families
- 4. Engage patients and their families in developing plans that reflect the patient's health care needs and goals**
 - 4.1. Facilitate discussions with patients and their families in a way that is respectful, non-judgmental, and culturally sensitive
 - 4.2. Assist patients and their families to identify, access, and make use of information and communication technologies to support their care and manage their health
 - 4.3. Use communication skills and strategies that help patients and their families make informed decisions regarding their health
- 5. Document and share written and electronic information about the medical encounter to optimize clinical decision-making, patient safety, confidentiality, and privacy**
 - 5.1. Document clinical encounters in an accurate, complete, timely, and accessible manner, in compliance with regulatory and legal requirements
 - 5.1.1. Write orders and progress notes that are well-organized and legible
 - 5.1.2. Complete hospital discharge summaries in a concise and timely manner
 - 5.1.3. Write well-organized letters, providing clear direction to the referring physician, other health professionals, and third party agents (e.g., insurance boards) where indicated
 - 5.1.4. Prepare concise, clear descriptions of surgical procedures
 - 5.2. Communicate effectively using a written health record, electronic medical record, or other digital technology
 - 5.3. Share information with patients and others in a manner that enhances understanding and respects patient privacy and confidentiality

Collaborator

Definition:

As *Collaborators*, orthopedic surgeons work effectively with other health care professionals to provide safe, high-quality patient-centred care.

Key and Enabling Competencies: Orthopedic surgeons are able to...

- 1. Work effectively with physicians and other colleagues in the health care professions**
 - 1.1. Establish and maintain positive relationships with physicians and other colleagues in the health care professions to support collaborative care

- 1.2. Negotiate overlapping and shared responsibilities with physicians and other colleagues in the health care professions in episodic and ongoing care
 - 1.2.1. Work effectively as a team member
 - 1.3. Engage in respectful shared decision-making with physicians and other colleagues in the health care professions
 - 1.3.1. Contribute surgical expertise to interprofessional teams
 - 1.3.2. Consult with other specialists and colleagues with regard to a patient's medical and surgical condition
 - 1.3.3. Consult with other health professionals with regard to a patient's social, rehabilitative, and nutritional concerns
- 2. Work with physicians and other colleagues in the health care professions to promote understanding, manage differences, and resolve conflicts**
- 2.1. Show respect toward collaborators
 - 2.2. Implement strategies to promote understanding, manage differences, and resolve conflict in a manner that supports a collaborative culture
 - 2.2.1. Demonstrate cooperation and communication between health professionals involved in the care of individual patients ensuring that consistent messages are delivered to patients and their families
- 3. Hand over the care of a patient to another health care professional to facilitate continuity of safe patient care**
- 3.1. Determine when care should be transferred to another physician or health care professional
 - 3.2. Demonstrate safe handover of care, using both oral and written communication, during a patient transition to a different health care professional, setting, or stage of care
 - 3.2.1. Communicate with the accepting physician and arrange for timely transfer of care for patients with urgent conditions, including direct provision or guidance for initial patient stabilization, imaging, splinting, and management

Leader

Definition:

As *Leaders*, orthopedic surgeons engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.

Key and Enabling Competencies: Orthopedic surgeons are able to...

1. Contribute to the improvement of health care delivery in teams, organizations, and systems

- 1.1. Apply the science of quality improvement to systems of patient care
- 1.2. Contribute to a culture that promotes patient safety
- 1.3. Analyze patient safety incidents to enhance systems of care
- 1.4. Use health informatics to improve the quality of patient care and optimize patient safety

2. Engage in the stewardship of health care resources

- 2.1. Allocate health care resources for optimal patient care
 - 2.1.1. Describe the scope of practice in a community setting based on resources and geography
 - 2.1.2. Determine priority of surgical cases based on clinical urgency and available resources
- 2.2. Apply evidence and management processes to achieve cost-appropriate care
 - 2.2.1. Consider costs in the selection of orthopedic implants

3. Demonstrate leadership in health care systems

- 3.1. Demonstrate leadership skills to enhance health care
 - 3.1.1. Apply knowledge of the structure and function of the health care system as it relates to Orthopedic Surgery
 - 3.1.1.1. Systems of regionalized trauma care
 - 3.1.1.2. Health care structure in community settings, including access to tertiary care, resources for stabilization, and investigation of patients prior to transfer
- 3.2. Facilitate change in health care to enhance services and outcomes

4. Manage career planning, finances, and health human resources in personal practice(s)

- 4.1. Set priorities and manage time to integrate practice and personal life
- 4.2. Manage personal professional practice(s) and career
 - 4.2.1. Manage patients' length of stay efficiently
 - 4.2.2. Manage surgical waiting lists efficiently

- 4.2.3. Apply knowledge of the principles of practice management, including
 - 4.2.3.1. Practice and remuneration models in the discipline, including group and solo practice
 - 4.2.3.2. Basic negotiation skills
 - 4.2.3.3. Basic principles of providing and receiving referrals

- 4.3. Implement processes to ensure personal practice improvement

Health Advocate

Definition:

As *Health Advocates*, orthopedic surgeons contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.

Key and Enabling Competencies: Orthopedic surgeons are able to...

1. Respond to an individual patient's health needs by advocating with the patient within and beyond the clinical environment

- 1.1. Work with patients to address determinants of health that affect them and their access to needed health services or resources
 - 1.1.1. Identify determinants of health particular to an individual patient, adapting the patient's assessment and management accordingly
 - 1.1.2. Facilitate access to community support groups which can assist orthopedic patients and their families
 - 1.1.3. Facilitate patient access to services in the health and social systems
- 1.2. Work with patients and their families to increase opportunities to adopt healthy behaviours
- 1.3. Incorporate disease prevention, health promotion, and health surveillance into interactions with individual patients
 - 1.3.1. Promote injury prevention with respect to work or recreational activities
 - 1.3.2. Identify risk factors that can lead to nonunion, ulceration, amputation, Charcot joints, and malignancy, and advise patients on lifestyle modifications to improve outcomes
 - 1.3.3. Advise patients on the risks and side effects of performance enhancing drugs
 - 1.3.4. Advise patients on the risks and side effects of substance abuse

- 1.3.5. Advise patients regarding the risk, adverse effects, and appropriate timing of return to work or sports, and provide guidance regarding graduated return

2. Respond to the needs of the communities or populations they serve by advocating with them for system-level change in a socially accountable manner

- 2.1. Work with a community or population to identify the determinants of health that affect them
 - 2.1.1. Identify workplace factors that lead to an increased risk of trauma
 - 2.1.2. Identify sport and recreational factors that lead to an increased risk of trauma
- 2.2. Improve clinical practice by applying a process of continuous quality improvement to disease prevention, health promotion, and health surveillance activities
 - 2.2.1. Advocate to decrease the burden of illness at the community or societal level through relevant orthopedic societies, community-based advocacy groups, other public education bodies, or private organizations
- 2.3. Contribute to a process to improve health in the community or population they serve
 - 2.3.1. Contribute to the generation of population-based data for improved understanding of orthopedic problems within at-risk populations

Scholar

Definition:

As *Scholars*, orthopedic surgeons demonstrate a lifelong commitment to excellence in practice through continuous learning, and by teaching others, evaluating evidence, and contributing to scholarship.

Key and Enabling Competencies: Orthopedic surgeons are able to...

1. Engage in the continuous enhancement of their professional activities through ongoing learning

- 1.1. Develop, implement, monitor, and revise a personal learning plan to enhance professional practice
- 1.2. Identify opportunities for learning and improvement by regularly reflecting on and assessing their performance using various internal and external data sources
 - 1.2.1. Recognize deficits in knowledge and technical skills and correct them through targeted learning

- 1.3. Engage in collaborative learning to continuously improve personal practice and contribute to collective improvements in practice

2. Teach students, residents, the public, and other health care professionals

- 2.1. Recognize the influence of role-modelling and the impact of the formal, informal, and hidden curriculum on learners
- 2.2. Promote a safe and respectful learning environment
- 2.3. Ensure patient safety is maintained when learners are involved
- 2.4. Plan and deliver learning activities
 - 2.4.1. Employ the principles of adult learning
 - 2.4.2. Employ approaches that account for different learning styles
- 2.5. Provide feedback to enhance learning and performance
- 2.6. Assess and evaluate learners, teachers, and programs in an educationally appropriate manner

3. Integrate best available evidence into practice

- 3.1. Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions that can address them
- 3.2. Identify, select, and navigate resources
- 3.3. Critically evaluate the integrity, reliability, and applicability of health-related research and literature
- 3.4. Integrate evidence into decision-making in their practice

4. Contribute to the creation and dissemination of knowledge and practices applicable to health

- 4.1. Demonstrate an understanding of the scientific principles of research and scholarly inquiry and the role of research evidence in health care
- 4.2. Identify ethical principles for research and incorporate them into obtaining informed consent, considering potential harms and benefits, and vulnerable populations
- 4.3. Contribute to the work of a research program
- 4.4. Pose questions amenable to scholarly investigation and select appropriate methods to address them
- 4.5. Summarize and communicate to professional and lay audiences, including patients and their families, the findings of relevant research and scholarly inquiry

Professional

Definition:

As *Professionals*, orthopedic surgeons are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.

Key and Enabling Competencies: Orthopedic surgeons are able to...

1. Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards

- 1.1. Exhibit appropriate professional behaviours and relationships in all aspects of practice, demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality
- 1.2. Demonstrate a commitment to excellence in all aspects of practice
- 1.3. Recognize and respond to ethical issues encountered in practice
- 1.4. Recognize and manage conflicts of interest
- 1.5. Exhibit professional behaviours in the use of technology-enabled communication

2. Demonstrate a commitment to society by recognizing and responding to societal expectations in health care

- 2.1. Demonstrate accountability to patients, society, and the profession by responding to societal expectations of physicians
- 2.2. Demonstrate a commitment to patient safety and quality improvement

3. Demonstrate a commitment to the profession by adhering to standards and participating in physician-led regulation

- 3.1. Fulfil and adhere to professional and ethical codes, standards of practice, and laws governing practice
 - 3.1.1. Apply professional standards and laws governing capacity and competence for medical decision making
 - 3.1.2. Apply the law as well as local policies and procedures relevant to substitute decision making and document advance directives and goals of care
 - 3.1.3. Adhere to requirements for mandatory reporting, such as driving restrictions, reportable infections, and non-accidental trauma
 - 3.1.4. Recognize intimate partner violence and violence in at-risk groups, and understand roles, responsibilities, and processes for intervention
 - 3.1.5. Exhibit appropriate professional relationships with industry

- 3.2. Recognize and respond to unprofessional and unethical behaviours in physicians and other colleagues in the health care professions
- 3.3. Participate in peer assessment and standard-setting
 - 3.3.1. Participate in morbidity and mortality reviews

4. Demonstrate a commitment to physician health and well-being to foster optimal patient care

- 4.1. Exhibit self-awareness and manage influences on personal well-being and professional performance
 - 4.1.1. Recognize and manage occupational health risks from disease transmission, substance abuse, fatigue, and overwork
 - 4.1.1.1. Develop effective strategies to monitor fatigue and mitigate its effects on clinical performance
 - 4.1.2. Prevent, recognize, and manage personal health impairment that may affect surgical competence
 - 4.1.3. Apply strategies to mitigate the personal impact of patient safety incidents and adverse outcomes
- 4.2. Manage personal and professional demands for a sustainable practice throughout the physician life cycle
- 4.3. Promote a culture that recognizes, supports, and responds effectively to colleagues in need
 - 4.3.1. Recognize and respond appropriately to impaired performance in colleagues

This document is to be reviewed by the Specialty Committee in Orthopedic Surgery by December 2021.

APPROVED – Specialty Standards Review Committee – August 2019