



UAEU

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NATIONAL INSTITUTE FOR HEALTH SPECIALTIES

NIHS Entrustable Professional Activities (EPAs) for Specialty Education in Orthopedic Surgery

Draft version 1

2024/03/11



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Orthopedic Surgery

EPA 1: Assessing and diagnosing patients with orthopedic illness or injury

Key Features: This EPA focuses on performing a focused history and appropriate physical examination and ordering basic investigations.

- This EPA also includes proposing a differential diagnosis and management plan for common orthopedic presentations with support and feedback from senior residents and attending orthopedic surgeon.
- This EPA does not include the execution of a management plan.
- This EPA may be observed in the inpatient setting, emergency department and outpatient clinic.

Assessment Plan:

Direct observation and/or case review by orthopedic surgeon, entrusted resident/fellow
Assessment form collects information on

- Case mix (write in):

Basis for formal entrustment decisions:

Collect 3 observations of achievement.

- At least 1 direct observation by orthopedic surgeon

When is unsupervised practice expected to be achieved: PGY 2

Relevant Milestones:

- 1** ME 2.2 Elicit an accurate, relevant history
- 2** ME 2.2 Perform an appropriate physical exam
- 3** COM 2.3 Gather information from other sources, including family members and the health information system, that may assist in the patient's care
- 4** ME 2.2 Order appropriate labs, imaging, and testing
- 5** ME 2.2 Generate a differential diagnosis
- 6** COM 1.1 Communicate using a patient-centered approach that facilitates patient trust and autonomy and is characterized by empathy, respect, and compassion
- 7** COM 1.2 Mitigate physical barriers to communication to optimize patient comfort, privacy, engagement, and safety
- 8** COM 5.1 Organize information in appropriate sections in an electronic or written medical record
- 9** P 1.1 Complete assigned responsibilities
- 10** P 1.1 Maintain patient confidentiality and identify situations where confidentiality is breached
- 11** P 1.5 Exhibit professional behaviors in the use of technology-enabled communication

Orthopedic Surgery

EPA 2: Assessing, investigating, and initiating a management plan for patients with orthopedic trauma

Key Features: This EPA focuses on prioritizing surgical consults from the emergency department, recognizing conditions requiring emergency management, formulating management plans, and providing initial care of higher-urgency musculoskeletal trauma (such as open fractures, joint dislocations, or significant soft-tissue injury).

Assessment Plan:

Direct observation or case review by orthopedic surgeon, entrusted resident/fellow
Assessment form collects information on:

- Case mix: open fracture; fracture; joint dislocation; soft tissue injury

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 1 open fracture
- At least 1 fracture or joint dislocation

When is unsupervised practice expected to be achieved: **PGY 2**

Relevant Milestones:

- 1** ME 2.2 Elicit an accurate, relevant history
- 2** ME 2.2 Perform an appropriate physical exam
- 3** ME 1.4 Apply clinical and biomedical sciences to manage common patient presentations
- 4** ME 2.2 Develop a differential diagnosis relevant to the patient's presentation
- 5** ME 2.2 Select and interpret appropriate investigations
- 6** ME 2.3 Work with the patient and family to understand relevant options for care
- 7** ME 2.4 Develop and implement an initial management plan
- 8** ME 1.5 Recognize urgent problems and seek assistance
- 9** COM 3.1 Provide information about the diagnosis, prognosis and plan of care clearly and compassionately
- 10** ME 2.3 Establish advance directives and goals of care with the patient/family
- 11** COM 5.1 Document a clinical encounter to adequately convey clinical reasoning and the rationale for decisions and/or recommendations
- 12** ME 4.1 Determine the need for referral to other specialists for pre-operative optimization
- 13** ME 4.1 Determine the need for, and coordinate availability of, enhanced post-operative monitoring/care, such as ICU or step down unit

Orthopedic Surgery

EPA 3: Assessing, investigating, and initiating a management plan for patients with common non-urgent orthopedic conditions

Key Features: This EPA includes gathering an accurate and pertinent history, performing a thorough and focused physical exam, and interpreting investigations to initiate an appropriate treatment plan.

- This EPA includes communicating the treatment plan appropriately to the patient and/or referral source.
- This EPA must be observed in the orthopedic outpatient clinical setting.

Assessment Plan:

Direct observation or case review by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: trauma; foot and ankle; hip and knee; sports; upper extremity/hand/Microsurgery; oncology; spine, Pediatric Orthopedics

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 2 different domains
- At least 1 direct observation

When is unsupervised practice expected to be achieved: End of PGY 2

Relevant Milestones:

- 1 ME 1.4 Apply clinical and biomedical sciences to manage common patient presentations
- 2 COM 2.2 Conduct a focused and efficient patient interview, managing the flow of the encounter while being attentive to the patient's cues and responses
- 3 ME 2.2 Elicit an accurate, relevant history
- 4 ME 2.2 Perform an appropriate physical exam
- 5 ME 2.2 Develop a differential diagnosis relevant to the patient's presentation
- 6 ME 2.2 Select and interpret appropriate investigations
- 7 ME 2.2 Determine diagnosis
- 8 ME 2.3 Assess patient's decision-making capacity and work with the patient and family to establish goals of care
- 9 ME 2.4 Develop and implement an initial management plan
- 10 ME 3.3 Advocate for a patient's procedure or therapy on the basis of urgency and available resources
- 11 ME 3.2 Obtain informed consent
- 12 ME 3.4 Perform a diagnostic or therapeutic injection, as relevant

- 13** COM 3.1 Provide information about the diagnosis, prognosis and plan of care clearly and compassionately
- 14** COM 5.1 Document a clinical encounter to adequately convey clinical reasoning and the rationale for decisions and/or recommendations
- 15** COL 1.3 Communicate effectively with other physicians and health care professionals
- 16** HA 1.3 Work with the patient and/or family to identify opportunities for disease prevention, health promotion, and health protection

Orthopedic Surgery

EPA 4: Assessing, investigating, and initiating a management plan for patients with urgent conditions

Key Features: This EPA focuses on performing a complete assessment of patients with orthopedic surgical emergencies, recognizing urgency, providing timely initial management and ensuring timely definitive care.

- Examples of orthopedic surgical emergencies include compartment syndrome, joint infection, serious soft tissue infection, Neurovascular compromise, limb threatening injuries, Polytrauma, multiple injured patients, and cauda equine syndrome.
- This EPA includes presentations where the condition is ruled out.
- This EPA may be observed in the emergency department, inpatient unit or in simulation.

Assessment Plan:

Direct observation or case review by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: compartment syndrome; joint infection; urgent soft tissue infection; cauda equine; neurovascular compromise; other condition
- Setting: emergency department; inpatient unit; simulation

Basis for formal entrustment decisions:

Collect 3 observations achievement.

When is unsupervised practice expected to be achieved: End of PGY 2

Relevant Milestones:

- 1 ME 1.5 Recognize urgent problems and seek assistance
- 2 ME 2.1 Prioritize aspects of the patient's assessment and management, responding to urgent presentations as well as ongoing changes in patient status
- 3 ME 2.2 Elicit an accurate, relevant history
- 4 ME 2.2 Perform an appropriate physical examination
- 5 ME 2.2 Interpret the findings of the physical exam to ascertain clinical significance
- 6 ME 2.2 Select and interpret appropriate investigations
- 7 ME 2.2 Develop a differential diagnosis relevant to the patient's presentation
- 8 ME 2.4 Develop a plan for initial management that includes appropriate monitoring, medical management and disposition
- 9 ME 2.4 Identify patients that may need further surgical or radiological intervention
- 10 ME 3.3 Advocate for a patient's procedure or therapy on the basis of urgency and available resources
- 11 COM 5.1 Document a clinical encounter to adequately convey clinical reasoning and

the rationale for decisions and/or recommendations

12 P 4.1 Maintain professional clinical performance in stressful situations

Orthopedic Surgery

EPA 5: Assessing, investigating, and initiating a management plan for pediatric patients with fractures and MSK infections

Key Features: This EPA includes gathering an accurate and pertinent history, performing a thorough and focused physical exam, and interpreting investigations to discuss and initiate an appropriate treatment plan.

Assessment Plan:

Direct observation or case review by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Setting: emergency department; outpatient; inpatient; operating room
- Case mix: fracture; MSK infection

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 1 of each, fracture and MSK infection

When is unsupervised practice expected to be achieved: End of PGY 3

Relevant Milestones:

- 1** ME 2.2 Elicit an accurate, relevant history
- 2** ME 2.2 Perform an appropriate physical exam
- 3** ME 2.2 Adapt the clinical assessment to the child's age and developmental stage
- 4** ME 2.2 Identify abnormalities in hemodynamic status to recognize the acutely septic patient
- 5** ME 2.2 Recognize risk factors for non-accidental trauma
- 6** ME 2.2 Recognize complications such as osteomyelitis, avascular necrosis, and premature physeal closure
- 7** ME 2.2 Select and interpret appropriate investigations
- 8** ME 1.4 Apply knowledge of Kocher's criteria in establishing diagnosis of septic arthritis
- 9** ME 2.2 Develop a differential diagnosis relevant to the patient's presentation
- 10** ME 3.3 Recognize situations requiring emergent or urgent surgical care
- 11** ME 4.1 Determine the need and timing of referral to another health care professional
- 12** ME 3.3 Advocate for a patient's procedure or therapy based on urgency and available resources
- 13** ME 3.4 Apply emergency splinting and immobilization, as relevant
- 14** COM 3.1 Share information and explanations that are clear, accurate, and timely, while checking for patient/family understanding

Orthopedic Surgery

EPA 6: Performing critical appraisal and presenting current orthopedic literature

Key Features: This EPA focuses on critical appraisal of literature to make appropriate clinical decisions and to encourage lifelong learning and acquisition of new knowledge and skills in the specialty.

- This EPA may be completed through presentation of a critical paper review at journal club, presentation of a literature review based on clinical question, or preparation of a grant or paper.

Assessment Plan:

Direct observation by orthopedic surgeon

Assessment form collects information on:

- Activity: literature review based on clinical question; paper or grant presentation; paper review at journal club

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: End of PGY 1

Relevant Milestones:

- 1 S 3.2 Identify, select and navigate pre-appraised resources
- 2 S 3.4 Identify evidence appropriate to one's scope of practice
- 3 S 3.3 Interpret study findings and critique their relevance to their practice
- 4 S 3.3 Determine the validity and risk of bias in a source of evidence
- 5 S 3.4 Discuss the barriers to and facilitators of applying evidence into practice
- 6 S 3.4 Integrate best evidence and clinical expertise
- 7 S 2.4 Present the information in an organized manner
- 8 P 2.1 Demonstrate a commitment to maintaining and enhancing competence

Orthopedic Surgery

EPA 7: Performing common non-operative orthopedic procedures

Key Features: This EPA includes performing common, non-operative orthopedic procedures, including closed reduction and splinting or casting of fracture(s) and/or dislocation(s), application of skeletal traction, joint aspiration and joint injection, in pediatric and adult patients.

- This EPA may be observed in the ward, clinic, emergency department, operating room or simulation lab.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Setting: ward; clinic; emergency department; operating room; simulation
- Procedure: closed reduction and casting; skeletal traction; skin traction; joint aspiration and fluid analysis; joint injection; other procedure
- Patient age: adult; pediatric

Basis for formal entrustment decisions:

Collect 5 observations of achievement.

- At least 1 closed reduction in an adult patient
- At least 1 closed reduction in a pediatric patient
- At least 1 skeletal traction
- At least 1 joint aspiration and fluid analysis
- At least 1 joint injection

When is unsupervised practice expected to be achieved: End of PGY 2

Relevant Milestones:

- 1 ME 3.2 Demonstrate knowledge of the indications and contraindications for the procedure
- 2 ME 3.1 Interpret imaging studies to confirm diagnosis and indications for intervention
- 3 ME 3.2 Obtain informed consent
- 4 ME 3.4 Gather the required instruments and materials
- 5 ME 3.4 Prepare and position the patient for the procedure
- 6 ME 3.4 Select and provide sedation and analgesia, as appropriate
- 7 ME 3.4 Apply knowledge of anatomy, key landmarks and the procedure
- 8 ME 3.4 Demonstrate aseptic technique: skin preparation, establishing and respecting the sterile field
- 9 ME 3.4 Execute the steps of the procedure in a safe and efficient manner
- 10 ME 3.4 Order and review post-procedure imaging and/or fluid analysis, as applicable

- 11** ME 4.1 Provide discharge instructions and plan for follow-up
- 12** ME 3.4 Prevent and/or manage immediate complications of the procedure
- 13** COM 5.1 Document the procedure

Orthopedic Surgery

EPA 8: Performing technical skills in the surgical management of fractures

Key Features: This EPA focuses on performance of the fundamental surgical technical skills for fracture care in the operating room, in the context of the following procedures: treatment of basic hip fractures (femoral neck/intertrochanteric) managed by fracture fixation using screws, sliding nail/plate, or cephalomedullary nail; open reduction and internal fixation of simple fracture patterns (e.g. diaphyseal fractures, simple periarticular fracture patterns); and closed reduction and IM nail fixation of simple fracture patterns (mid-diaphyseal fractures (e.g. femur and tibia).

- The technical skills of this EPA include surgical approach; safe use and interpretation of fluoroscopy; application of internal fixation (interfragmentary screws, compression plate, intramedullary nail); appropriate use of AO techniques to manage fracture; and appropriate soft tissue management and closure.
- Performing the reduction is not required for this EPA.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Procedure: cannulated screws; sliding hip screw; IM nail; diaphyseal plating; periarticular fracture plating

Basis for formal entrustment decisions:

Collect 3 observations of achievement.

- At least 3 different procedures

When is unsupervised practice expected to be achieved: PGY 4

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach
 - Safe use and interpretation of fluoroscopy
 - Application of internal fixation (interfragmentary screws, compression plate, intramedullary nail)

- Appropriate use of AO techniques to manage fracture
- Appropriate soft tissue management and closure
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6** ME 3.4 Post procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team
- 9** COM 3.1 Provide information about the procedure, operative findings and patient status to the family in a clear, accurate and timely manner

Orthopedic Surgery

EPA 9: Performing technical procedures for the surgical management of simple fractures in pediatric patients

Key Features: This EPA includes performance of surgical technical skills in the operating room in the context of closed fractures or fracture-dislocations.

- The technical skills of this procedure include closed reduction of fracture or fracture-dislocation; percutaneous pinning of a fracture; safe use and interpretation of fluoroscopy; and application of cast/splint for a fracture or fracture-dislocation.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Procedure (select all that apply): closed fracture reduction of simple fracture patterns; apply percutaneous pins; apply cast to maintain fracture reduction.
- Site: forearm; distal radius; tibia; ankle

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

When is unsupervised practice expected to be achieved: PGY 3

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Closed reduction of fracture or fracture-dislocation
 - Percutaneous pinning of a fracture
 - Safe use and interpretation of fluoroscopy
 - Application of cast/splint of a fracture or fracture-dislocation
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6 ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7 ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8 COL 1.2 Professional and effective communication/utilization of assistants and OR

team

- 9 COM 3.1 Provide information about the procedure, post-op plan and risk of long term complications (e.g. growth plate) to the parents/patient

Orthopedic Surgery

EPA 10: Performing basic elective arthroplasty

Key Features: The focus of this EPA is pre-operative planning, surgical approach, appropriate use of power tools, and performance of specific technical steps for routine primary arthroplasty for patients with hip or knee arthritis.

- The technical skills of this EPA include surgical approach; retractor placement/protection of important structures; safe operation of power equipment; and appropriate soft tissue management and closure.
- This EPA may be observed in the simulation lab.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Setting: operating room; simulation lab
- Procedure: primary THA; primary TKA

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

- At least 1 THA
- At least 1 TKA

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach
 - Retractor placement/protection of important structures
 - Safe operation of power equipment
 - Appropriate soft tissue management and closure
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6 ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7 ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of

movement and flow

- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 11: Performing diagnostic arthroscopy

Key Features: This EPA focuses on the visualization of relevant anatomic structures while performing knee and shoulder arthroscopy, and identification of joint pathologies.

- The technical skills of this EPA include accurate marking of pertinent anatomic structures on patient, for surgical planning i.e., the location of the A-C joint, coracoid, biceps tendon, pes anserinus, etc.; portal creation and safe joint entry; appropriate selection and handling of instruments; joint inspection; and identification of normal/pathologic structures.
- This EPA may be observed in the operating room or through simulation.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Procedure: knee scope; shoulder scope
- Setting: OT; Simulation

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

- At least 1 knee
- At least 1 shoulder

When is unsupervised practice expected to be achieved: **PGY 5**

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Accurate marking of pertinent anatomic structures on patient, for surgical planning i.e., the location of the A-C joint, coracoid, biceps tendon, pes anserinus, etc.
 - Portal creation and safe joint entry
 - Appropriate selection and handling of instruments
 - Joint inspection
 - Identification of normal/pathologic structures
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position

instruments/hardware where intended

- 6** ME 3.4 Post procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 12: Assessing, diagnosing, and managing adult patients with any orthopedic illness or injury

Key Features: This EPA focuses on the assessment of a patient with an MSK complaint and the development of a management plan.

- This includes obtaining a complete history and examination of the region, including neurologic and vascular assessments of the joint above and below the focus of complaint (and other relevant regions), ordering and interpreting appropriate radiographs and additional investigations, and developing a differential diagnosis, most likely diagnosis, and management plan.
- This EPA includes appropriate communication with the patient as well as other health professionals.

Assessment Plan:

Direct observation or case review by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: trauma; foot and ankle; hip and knee; sports; upper extremity/hand; oncology; spine

Basis for formal entrustment decisions:

Collect 14 observations of achievement.

- At least 2 from each domain
- At least 1 direct observation for each domain

When is unsupervised practice expected to be achieved: **PGY 3**

Relevant Milestones:

- 1** ME 1.4 Apply clinical and biomedical sciences to manage core patient presentations in orthopedic surgery
- 2** ME 1.5 Perform a clinical assessment that addresses all relevant issues
- 3** ME 2.2 Develop a differential diagnosis relevant to the patient's presentation
- 4** ME 2.2 Select and interpret appropriate investigations
- 5** ME 2.2 Focus the clinical encounter, performing it in a time-effective manner, without excluding key elements
- 6** ME 2.3 Address the impact of the medical condition on the patient's ability to pursue life goals and purpose
- 7** ME 2.4 Develop a plan for management which may include observation, surgical intervention and/or non-operative intervention
- 8** COM 3.1 Provide information about the diagnosis, prognosis and plan of care clearly and compassionately

- 9** COM 4.1 Facilitate discussions with the patient and family in a way that is respectful, non-judgmental, and culturally sensitive
- 10** COL 1.2 Consult as needed with other physicians and/or health care professionals
- 11** COM 5.1 Document a clinical encounter to adequately convey clinical reasoning and rationale for decisions and/or recommendations
- 12** COL 1.3 Provide timely and necessary written information to colleagues to enable effective care
- 13** HA 1.3 Work with the patient and/or family to identify opportunities for disease prevention, health promotion, and health protection

Orthopedic Surgery

EPA 13: Assessing, diagnosing, and managing pediatric patients with any orthopedic illness or injury

Key Features: This EPA includes obtaining a focused history and physical exam, and developing a comprehensive management plan.

- This EPA includes both simple and complex disorders; it does not include acute fractures.
- Examples of simple disorders include flat foot, and angular or rotational deformity.
- Examples of complex disorders include club foot, DDH, Perthes, scoliosis, syndromes and SCFE.
- This EPA may be observed in a clinical setting or in simulation (i.e., OSCE).

Assessment Plan:

Direct observation or case review by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on

- Setting: clinical; simulation
- Case Complexity: low; high
- Condition: foot abnormality; club foot; angular or rotational deformity; DDH; perthes; scoliosis; SCFE; syndromes; other

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 2 complex conditions
- At least 1 direct observation

When is unsupervised practice expected to be achieved: **PGY 3**

Relevant Milestones:

- 1** ME 1.4 Apply clinical and biomedical sciences to manage core patient presentations in orthopedic surgery
- 2** ME 1.5 Perform a clinical assessment that addresses all relevant issues
- 3** ME 2.2 Adapt the clinical assessment to the child's age and developmental stage
- 4** ME 2.2 Develop a differential diagnosis relevant to the patient's presentation
- 5** ME 2.2 Select and interpret appropriate investigations
- 6** ME 2.2 Focus the clinical encounter, performing it in a time-effective manner, without excluding key elements
- 7** ME 2.3 Address the impact of the medical condition on the patient's ability to pursue life goals and purpose
- 8** ME 2.4 Develop a plan for management which may include observation, surgical intervention and/or non-operative intervention

- 9** COM 3.1 Provide information about the diagnosis, prognosis and plan of care clearly and compassionately
- 10** COM 4.1 Facilitate discussions with the patient and family in a way that is respectful, non-judgmental, and culturally sensitive
- 11** COL 1.2 Consult as needed with other physicians and/or health care professionals
- 12** COM 5.1 Document a clinical encounter to adequately convey clinical reasoning and rationale for decisions and/or recommendations
- 13** COL 1.3 Provide timely and necessary written information to colleagues to enable effective care
- 14** HA 1.3 Work with the patient and/or family to identify opportunities for disease prevention, health promotion, and health protection

Orthopedic Surgery

EPA 14: Assessing, diagnosing, and managing patients with complications of orthopedic surgeries

Key Features: This EPA includes recognizing complications, formulating a management plan, and initiating an operative plan or providing non-operative management.

Assessment Plan:

Direct observation and/or case review by orthopedic surgeon, entrusted resident/fellow
Assessment form collects information on

- Case mix: soft tissue infection/dehiscence; peripheral nerve injury; deep vein thrombosis/pulmonary embolus; vascular injury; loss of reduction or implant complication post-ORIF; mal-union; non-union; peri-prosthetic fracture; joint dislocation; other [write in]

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 4 different complications

When is unsupervised practice expected to be achieved: **PGY 4**

Relevant Milestones:

- 1 ME 1.5 Perform a clinical assessment that addresses all relevant issues
- 2 ME 2.2 Recognize and respond to complications of orthopedic surgery
- 3 ME 2.1 Consider clinical urgency, feasibility, availability of resources, and comorbidities in determining treatment priorities
- 4 ME 2.4 Develop a plan for management which may include observation, surgical intervention and/or non-operative intervention
- 5 ME 3.1 Integrate all sources of information to develop a procedural or therapeutic plan that is safe, patient-centered, and considers the risks and benefits of all approaches
- 6 COM 3.2 Disclose adverse events and/or outcomes to the patient and family accurately and appropriately
- 7 ME 3.3 Advocate for a patient's procedure or therapy on the basis of urgency and available resources
- 8 ME 3.2 Obtain informed consent
- 9 ME 3.3 Organize and facilitate surgical management including booking the procedure, obtaining imaging, and obtaining the required instrumentation

Orthopedic Surgery

EPA 15: Obtaining informed consent in preparation of orthopedic procedures

Key Features: This EPA focuses on effective communication with the patient and/or family in the discussion of consent for an orthopedic procedure.

- This includes describing the alternatives to and benefits, risks and expected outcomes of the procedure, including common risks as well as rare but serious risks, to obtain informed consent from the patient, substitute decision maker, or public trustee.
- This includes responding to any questions or seeking out help/resources to have questions appropriately answered prior to completion of consent.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Patient Age: pediatric; adult

Basis for formal entrustment decisions:

Collect 3 observations of achievement.

- At least 1 pediatric patient
- At least 3 different observers

When is unsupervised practice expected to be achieved: End PGY 1

Relevant Milestones:

- 1 ME 1.4 Apply knowledge of the indications for, and techniques and complications of surgical procedures
- 2 COM 3.1 Provide information about diagnosis, prognosis, and plan of care clearly and compassionately
- 3 ME 3.2 Explain the risks and benefits of, the rationale and alternatives for a proposed procedure
- 4 COM 4.3 Use effective communication skills and strategies, such as body posture, language at the appropriate level, and periodic checks for understanding
- 5 COM 2.1 Actively listen and respond to patient cues
- 6 COM 4.3 Answer questions from the patient and family
- 7 ME 2.3 Share concerns, in a constructive and respectful manner, about goals of care when they are not felt to be achievable
- 8 ME 3.2 Use shared decision-making in the consent process, taking risks and uncertainty into consideration
- 9 COM 5.1 Document the consent discussion in an accurate and complete manner

Orthopedic Surgery

EPA 16: Running an orthopedic service

Key Features: This EPA focuses on the efficient management of an inpatient service. This includes delegation of tasks to other residents and health care professionals as well as administrative duties relevant to the organization of the team of physicians.

- The observation of this EPA is divided into two parts: overall patient care and working effectively with the interprofessional team.
- Observation of the patient care aspects of this EPA is based on a duration of at least a month.

Assessment Plan:

Part A: Overall patient care

Direct and indirect observation by orthopedic surgeon

Use Assessment form.

Part B: Working effectively with the interprofessional team

Multiple observers provide feedback individually, which is then collated into one report.

Assessment form collect information about:

- Observer role: nurse; social worker; orthopedic technologist; physiotherapist; entrusted resident/fellow; other team member

Basis for formal entrustment decisions:

Part A: Overall patient care

Collect 1 observation of achievement.

Part B: Working effectively with the interprofessional team

Collect observations from multiple observers at least 2 times.

- At least 3 observers at each time point

When is unsupervised practice expected to be achieved: End of PGY 1

Relevant Milestones:

Part A: Overall patient care

- 1 ME 1.1 Demonstrate responsibility and accountability for decisions regarding patient care
- 2 ME 3.1 Determine the most appropriate procedures or therapies for the purpose of assessment and/or management
- 3 ME 2.4 Develop and implement plans for ongoing care, discharge and follow-up
- 4 ME 4.1 Determine the need and timing of referral to another health care professional
- 5 S 3.4 Integrate best evidence and clinical expertise into decision-making

- 6** COM 1.5 Manage disagreements and emotionally charged conversations with patients and/or families
- 7** HA 1.1 Facilitate timely patient access to services and resources
- 8** L 2.1 Allocate health care resources for optimal patient care
- 9** L 4.1 Manage time and prioritize tasks
- 10** L 3.1 Plan work schedules for the service team
- 11** L 4.2 Run the service efficiently, safely and effectively
- 12** S 2.3 Supervise junior learners to ensure they work within their limits

Part B: Working with an interprofessional team

- 1** P 1.1 Exhibit appropriate professional behaviors
- 2** P 1.1 Respond punctually to requests from patients or other health care professionals
- 3** COL 1.2 Make effective use of the scope and expertise of other health care professionals
- 4** COL 2.1 Delegate tasks and responsibilities in an appropriate and respectful manner
- 5** COL 1.3 Communicate effectively with physicians and other health care professionals
- 6** S 2.4 Provide formal and informal teaching for junior learners
- 7** S 2.5 Provide junior learners with useful timely feedback

Orthopedic Surgery

EPA 17: Documenting patient care encounters

Key Features: This EPA focuses on the application of written communication skills in a variety of formats: consultations, operative notes, and discharge summaries.

- This includes a synthesis of the procedure and/or pertinent clinical findings, investigations, and management plan.
- The documents submitted for review must be the sole work of the resident.
- This EPA may be observed in any care setting (inpatient/outpatient) and any patient presentation.

Assessment Plan:

Review of clinical documentation by orthopedic surgeon, entrusted resident/fellow
Assessment form collects documentation on

- Document: consultation note; admission note; operative note; transfer of care note; progress note; discharge summary

Basis for formal entrustment decisions:

Collect 3 observations of achievements.

- At least 1 operative note
- At least 1 discharge summary or transfer of care note
- At least 1 consult note or admission note

When is unsupervised practice expected to be achieved: **PGY 1**

Relevant Milestones:

- 1** COM 5.1 Organize information in appropriate sections
- 2** COM 5.1 Document all relevant findings and investigations
- 3** COM 5.1 Document a clinical encounter to adequately convey clinical reasoning, and rationale for decisions and/or recommendations
- 4** COM 5.1 Document the plan for ongoing management
- 5** COM 5.1 Complete clinical documentation in a timely manner
- 6** COL 3.2 Demonstrate safe written handover of care
- 7** P 1.5 Exhibit professional behaviors in the use of technology-enabled communication

Orthopedic Surgery

EPA 18: Conducting scholarly work

Key Features: This may include scholarly activities related to clinical or basic science research, patient safety, quality improvement or surgical education.

- The resident's involvement in a scholarly activity must include the following: generation of question/hypothesis, literature review and critical appraisal, project design, ethics application, data collection, data analysis/statistics, data synthesis and manuscript preparation and/or presentation of work.
- Assessment is based on the submission of a completed scholarly project and may also include observation of the presentation of the scholarly work at a local, national or international meeting.

Assessment Plan:

Review of resident's submission of the completed scholarly project by research supervisor, program director, or delegate (i.e., research director)

Use Assessment form with mandatory narrative comments.

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: **PGY 3**

Relevant Milestones:

- 1** L 4.1 Organize work to manage clinical, scholarly and other responsibilities
- 2** S 4.4 Identify, consult and collaborate with content experts and others in the conduct of scholarly work
- 3** S 4.4 Generate focused questions for scholarly investigation
- 4** S 3.3 Critically evaluate the integrity, reliability, and applicability of health- related research and literature
- 5** S 4.5 Summarize the findings of a literature review
- 6** S 4.4 Select appropriate methods of addressing a given scholarly question
- 7** S 4.2 Identify ethical principles in research
- 8** S 4.4 Collect data for a scholarly project
- 9** S 4.4 Perform data analysis
- 10** S 4.4 Integrate existing literature and findings of data collection
- 11** S 4.4 Identify areas for further investigation
- 12** S 4.5 Summarize and communicate the findings of relevant research and scholarly inquiry
- 13** S 4.5 Prepare a manuscript suitable for publication in a peer-reviewed journal

Orthopedic Surgery

EPA 19: Supervising, teaching, and assessing medical students and residents

Key Features: This EPA is focused on the supervision, management, and teaching of medical students and residents on a clinical teaching unit or in a resident educational activity and includes ensuring safe patient care and providing feedback.

- This EPA may be observed on the ward, operating room, clinic, and small group sessions.

Assessment Plan:

Multiple observers provide feedback individually (including supervisors, peers and junior learners), which is then collated to one report

Assessment form collects information on:

- Setting: ward; OR; clinic; small group
- Observer: orthopedic surgeon; entrusted resident or fellow

Basis for formal entrustment decisions:

Collect feedback from at least 5 observers.

- At least 1 from orthopedic surgeon
- At least 4 from different residents
- At least 2 different settings

When is unsupervised practice expected to be achieved: **PGY 4**

Relevant Milestones:

- 1** S 2.4 Identify the learning needs of a junior learner
- 2** S 2.1 Use strategies for deliberate, positive role-modelling
- 3** S 2.2 Ensure a safe learning environment for all members of the team
- 4** S 2.3 Supervise junior learners to ensure they work within their limits
- 5** S 2.3 Balance clinical supervision and graduated responsibility, ensuring the safety of patients and learners
- 6** S 2.4 Demonstrate basic skills in teaching others, including peers
- 7** S 2.4 Describe how to formally plan a medical education session
- 8** S 2.4 Describe sources of information used to assess learning needs
- 9** S 2.4 Define specific learning objectives for a teaching activity
- 10** S 2.5 Provide junior learners with useful timely feedback
- 11** S 2.6 Appropriately assess junior learners
- 12** COL 2.1 Delegate tasks and responsibilities in an appropriate and respectful manner
- 13** L 1.2 Actively encourage all involved in health care to report and respond to unsafe situations

Orthopedic Surgery

EPA 20: Implementing the principles of quality improvement and patient safety

Key Features: The achievement of this EPA is based on submitting a report identifying a safety issue with a proposed solution, and presenting the report at M & M rounds, adverse events meeting, or equivalent.

Assessment Plan:

Direct observation of presentation and review of submitted report by orthopedic surgeon
Use Assessment form.

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

When is unsupervised practice expected to be achieved: PGY 1

Relevant Milestones:

- 1** L 1.1 Gather information for the purposes of quality assurance or improvement
- 2** S 4.4 Perform data analysis
- 3** L 1.1 Integrate existing standards for health care delivery with findings of data collection
- 4** L 1.1 Identify potential improvement opportunities
- 5** L 1.1 Identify the impact of human and system factors on health care delivery
- 6** L 3.1 Demonstrate an understanding of the operations of orthopedic surgery services
- 7** S 3.4 Integrate best evidence and clinical expertise into decision-making
- 8** P 2.2 Demonstrate a commitment to patient safety and quality improvement initiatives within their own practice environment

Orthopedic Surgery

EPA 21: Providing surgical management for patients with acute, semi-acute, or chronic complications of orthopedic surgeries

Key Features: This EPA includes the following complications: loss of reduction, implant complication, mal-union, non-union, peri-prosthetic fracture, joint dislocation, and surgical site infection.

- This EPA may be observed on any clinical rotation.

Assessment Plan

Direct observation by orthopedic surgeon or fellow

Assessment form collects information on:

- Case mix: loss of reduction; implant complication; infection; mal-union; non- union; peri-prosthetic fracture; joint dislocation

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 4 different complications

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6 ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7 ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8 COL 1.2 Professional and effective communication/utilization of assistants and OR team
- 9 COM 3.1 Provide information about the procedure, operative findings and patient status to the family in a clear, accurate and timely manner

Orthopedic Surgery

EPA 22: Performing lower extremity amputations

Key Features: This EPA includes management of elective or emergent lower extremity amputations, including above knee amputation (AKA), through knee amputation, below knee amputation (BKA), and ankle/foot amputations.

- The technical skills of this EPA include surgical approach and exposure; osseous management (use of saw, bevel bone, length of residual bone); vascular ligation; nerve handling; flap preparation; soft tissue handling; and closure and dressing.

Assessment Plan:

Direct observation by orthopedic surgeon or orthopedic entrusted fellow

Assessment form collects information on:

- Procedure: AKA; through knee; BKA; ankle/foot

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

- At least 1 ankle/foot amputation
- At least 1 AKA, through knee or BKA

When is unsupervised practice expected to be achieved: PGY 4

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Osseous management (use of saw, bevel bone, length of residual bone)
 - Vascular ligation
 - Nerve handling
 - Flap preparation
 - Soft tissue handling
 - Closure and dressing
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6 ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan

- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team
- 9** COM 3.1 Provide information about the procedure, operative findings and patient status to the family in a clear, accurate and timely manner

Orthopedic Surgery

EPA 23: Providing surgical management for patients with soft tissue disorders and tendinopathies of the upper or lower extremity

Key Features: This EPA focuses on performing technical aspects related to surgical management of soft tissue disorders and/or tendinopathies.

- This EPA includes the management of tendon and ligament problems.
- The technical skills of this EPA include surgical approach and exposure, soft-tissue fixation/repair/debridement, implant and/or suture selection, soft tissue handling, closure, and dressing, and splinting and/or casting.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: upper extremity; lower extremity

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 1 upper extremity
- At least 1 lower extremity

When is unsupervised practice expected to be achieved: PGY 4

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Soft-tissue fixation/repair/debridement
 - Implant and/or suture selection
 - Soft tissue handling
 - Closure and dressing
 - Splinting and/or casting
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan

- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 24: Using closed reduction and external fixation to provide initial management for patients with complex fractures and/or dislocations

Key Features: This EPA must include applying external fixation to extremities and the pelvis.

- This EPA includes emergent orthopedic issues that are life or limb threatening, and emergent operating room management as part of a staged protocol for such injuries.
- The technical skills of this EPA include fracture reduction, including use of adjuncts, as necessary; appropriate soft tissue management, including open fractures; safe use and interpretation of fluoroscopy; and insertion of pins and application of external fixator.
- This EPA does NOT include definitive fracture management.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: upper extremity; lower extremity; pelvis
- Setting: ER/OR; simulation

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 1 application of external fixator to pelvis
- At least 1 application of external fixator to an extremity
- No more than 2 in simulation

When is unsupervised practice expected to be achieved: PGY 3

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Fracture reduction, including use of adjuncts, as necessary
 - Appropriate soft tissue management including open fractures
 - Safe use and interpretation of fluoroscopy
 - Insertion of pins and application of external fixator
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended

- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team
- 9** COM 3.1 Provide information about the procedure, operative findings and patient status to the family in a clear, accurate and timely manner

Orthopedic Surgery

EPA 25: Using an intramedullary nail to provide definitive surgical management for patients with simple and/or complex diaphyseal and meta-diaphyseal fractures

Key Features: The technical aspects of this procedure include surgical approach and exposure; fracture reduction, including use of adjuncts, as necessary; safe use and interpretation of fluoroscopy; insertion of guide wire(s); reaming; internal fixation, using nails, screws, plate and/or K-wires as applicable; and appropriate soft tissue management, including open fractures.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: femur; tibia
- Case Complexity: low; high

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 2 femur
- At least 2 tibia
- At least 1 complex case

When is unsupervised practice expected to be achieved: PGY 4

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Fracture reduction, including use of adjuncts , as necessary
 - Safe use and interpretation of fluoroscopy
 - Insertion of guide wire(s)
 - Reaming
 - Internal fixation, using nails, screws, plate and/or K-wires as applicable
 - Appropriate soft tissue management including open fractures
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position

instruments/hardware where intended

- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team
- 9** COM 3.1 Provide information about the procedure, operative findings and patient status to the family in a clear, accurate and timely manner

Orthopedic Surgery

EPA 26: Using a plate to provide definitive surgical management for patients with simple and/or complex diaphyseal and meta-diaphyseal fractures

Key Features: This EPA focuses on surgically managing simple and/or complex diaphyseal and meta-diaphyseal fractures managed with a plate.

- This EPA does not include ankle or wrist fractures.
- The technical skills of this EPA include surgical approach and exposure; fracture reduction, including use of adjuncts, as necessary; safe use and interpretation of fluoroscopy; internal fixation, using nails, screws, plate and/or K-wires as applicable; appropriate use of AO techniques to manage fracture; closure and dressing; and appropriate soft tissue management, including open fractures.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: diaphyseal; meta-diaphyseal
- Site: upper extremity; lower extremity
- Case Complexity: low; high

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 1 upper extremity
- At least 1 lower extremity

When is unsupervised practice expected to be achieved: PGY 4

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Fracture reduction, including use of adjuncts, as necessary
 - Safe use and interpretation of fluoroscopy
 - Internal fixation, using nails, screws, plate and/or K-wires as applicable
 - Appropriate use of AO techniques to manage fracture

- Closure and dressing
- Appropriate soft tissue management including open fractures
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 27: Providing definitive surgical management for patients with peri-/intra-articular fractures (AO/OTA B and C-type fractures)

Key Features: This EPA includes peri-/intra-articular fractures (AO/OTA B and C-type fractures), including proximal or distal humerus, olecranon, distal radius, distal femur, tibial plateau, pilon, and ankle.

- This does not include hip fractures.
- This EPA includes operating room set-up.
- The technical skills of this EPA include surgical approach and exposure; fracture reduction, including use of adjuncts, as necessary; safe use and interpretation of fluoroscopy; internal fixation, using nails, screws, plate and/or K-wires as applicable; and appropriate soft tissue management including open fractures.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: proximal humerus; distal humerus; olecranon; distal radius; distal femur; tibial plateau; pilon; ankle
- Case Complexity: low; high

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 1 distal radius
- At least 1 tibial plateau
- At least 1 ankle

When is unsupervised practice expected to be achieved: **PGY 5**

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Fracture reduction, including use of adjuncts, as necessary
 - Safe use and interpretation of fluoroscopy

- Internal fixation, using nails, screws, plate and/or K-wires as applicable
- Appropriate soft tissue management including open fractures
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team
- 9** COM 3.1 Provide information about the procedure, operative findings and patient status to the family in a clear, accurate and timely manner

Orthopedic Surgery

EPA 28: Using internal fixation to provide definitive surgical management for patients with any hip fracture pattern (trans-cervical, basicervical, intertrochanteric)

Key Features: This EPA includes the following surgical procedures: reduction and fixation of a femoral neck fracture with cannulated screws; reduction and fixation of an intertrochanteric fracture with a sliding hip screw or cephalomedullary nail.

- The technical skills of this EPA include surgical approach and exposure; fracture reduction, including use of adjuncts, as necessary; safe use and interpretation of fluoroscopy; insertion of guide wire(s); reaming; insertion of implant(s); and soft tissue handling.

Assessment Plan:

Direct observation by orthopedic surgeon

Assessment form collects information on:

- Procedure: plate and/or screws fixation; proximal femoral nail fixation
- Case complexity: low; high

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 1 with screws or plate and screws
- At least 1 with proximal femoral nail
- At least 1 complex case

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Fracture reduction, including use of adjuncts, as necessary
 - Safe use and interpretation of fluoroscopy
 - Insertion of guide wire(s)
 - Reaming

- Insertion of implant(s)
- Soft tissue handling
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 29: Performing arthroplasty for the definitive surgical management for patients with a hip fracture

Key Features: The focus of this EPA is the performance of hemiarthroplasty or total hip arthroplasty for the management of hip fractures.

- The technical skills of this EPA include surgical approach and exposure, acetabulum evaluation and/or preparation, femur preparation, appropriate cement technique if required, trial reduction, insertion of implant(s), assessment of stability, soft tissue handling, and closure and dressing.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Procedure: hemiarthroplasty; total hip arthroplasty

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Acetabulum evaluation and/or preparation
 - Femur preparation
 - Appropriate cement technique if required
 - Trial reduction
 - Insertion of implant(s)
 - Assessment of stability
 - Soft tissue handling
 - Closure and dressing
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended

- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 30: Performing surgical management for patients with a forefoot deformity

Key Features: The focus of this EPA is surgical treatment for patients with forefoot deformity.

- The technical skills of this EPA include surgical approach and exposure, deformity correction (boney and/or soft tissue release), joint preparation, instrumentation, safe use and interpretation of fluoroscopy, soft tissue handling, and splinting and/or casting.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: hallux valgus; hammer toes; hallux rigidus; rheumatoid forefoot deformity
- Procedure: metatarsophalangeal (MTP) fusion; hallux valgus correction; toe corrections; other procedure

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

- At least 2 different conditions

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Deformity correction (boney and/or soft tissue release)
 - Joint preparation
 - Instrumentation
 - Safe use and interpretation of fluoroscopy
 - Soft tissue handling
 - Splinting and/or casting
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended

- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 31: Providing surgical management for patients with foot and ankle arthritis

Key Features: This EPA includes surgical treatments for patients with ankle, hindfoot, and/or midfoot arthritis.

- This EPA includes bone preparation, and insertion of implants for fusion.
- The technical skills of this EPA include surgical approach and exposure, joint preparation, deformity correction (boney and/or soft tissue release), position of fusion, instrumentation, and safe use and interpretation of fluoroscopy.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: ankle; hindfoot; midfoot

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1** ME 3.1 Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Joint preparation
 - Deformity correction (boney and/or soft tissue release)
 - Position of fusion
 - Instrumentation
 - Safe use and interpretation of fluoroscopy
- 5** ME 3.4 Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 32: Performing primary TKA/THA

Key Features: This EPA focuses on the management of patients with hip or knee arthritis with primary TKA/THA.

- The technical skills of this EPA include surgical approach and exposure; retractor placement and protection of important structures; safe operation of power equipment; accurate intra-operative assessment of implant sizes and appropriate use of equipment trials; assessment of ROM, stability, limb length and soft tissue balance; precise implantation of true components; and closure and dressing.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Procedure: TKA; THA

Basis for formal entrustment decisions:

Collect 4 observations of achievement.

- At least 2 of each procedure

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Retractor placement and protection of important structures
 - Safe operation of power equipment
 - Accurate intra-operative assessment of implant sizes and appropriate use of equipment trials
 - Assessment of ROM, stability, limb length and soft tissue balance
 - Precise implantation of true components
 - Closure and dressing
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended

- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 33: Performing complex primary or simple revision TKA/THA

Key Features: This EPA includes recognizing situations requiring more complex primary or revision hip or knee arthroplasty.

- Examples of complex primary TKA/THA include, DDH, AVN, post traumatic osteoarthritis, and severe deformity.
- Examples of simple revision include modular component exchange, implant removal and insertion of cement spacer for chronic infection, and implant revision for aseptic loosening without significant bone loss.
- The technical skills of this EPA include surgical approach and exposure; retractor placement and protection of important structures; safe operation of power equipment; accurate intra-operative assessment of implant sizes and appropriate use of equipment trials; assessment of ROM, stability, limb length and soft tissue balance; precise implantation of true components; and closure and dressing.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: hip; knee

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

- At least 1 hip and 1 knee

When is unsupervised practice expected to be achieved: **PGY 5**

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Retractor placement and protection of important structures
 - Safe operation of power equipment
 - Accurate intra-operative assessment of implant sizes and appropriate use of equipment trials

- Assessment of ROM, stability, limb length and soft tissue balance
 - Precise implantation of true components
 - Closure and dressing
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
 - 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
 - 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
 - 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 34: Providing arthroscopic management for patients with hip, knee, shoulder, and ankle disorders

Key Features: This EPA focuses on performing technical aspects related to arthroscopic management of hip, knee, shoulder, and ankle disorders.

- The technical skills of this EPA include portal creation and safe joint entry; appropriate selection and handling of instruments; performance of the procedure without damage to healthy structures; recognition of intra-articular pathology; surgical treatment of intra-articular pathology; appropriate selection of implant, as relevant; and soft tissue handling.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: shoulder; hip; knee; ankle

Basis for formal entrustment decisions:

Collect 3 observations of achievement.

- At least 2 knee
- At least 1 shoulder

When is unsupervised practice expected to be achieved: **PGY 5**

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Portal creation and safe joint entry
 - Appropriate selection and handling of instruments
 - Performance of the procedure without damage to healthy structures
 - Recognition of intra-articular pathology
 - Surgical treatment of intra-articular pathology
 - Appropriate selection of implant, as relevant
 - Soft tissue handling
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position

instruments/hardware where intended

- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 35: Providing surgical management for patients with upper extremity conditions

Key Features: This EPA includes the surgical treatment of arthritic, chronic/post traumatic upper extremity conditions. This may be in the form of arthroplasty, arthrodesis, corrective osteotomy, or soft tissue reconstruction.

- The technical skills of this EPA include surgical approach and exposure; implant utilization, when applicable; soft tissue handling and splinting and/or casting
- This EPA does not include arthroscopic management.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: shoulder; elbow; wrist; hand
- Procedure: arthroplasty; fusion; osteotomy; resection; debridement/release

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

- At least 1 shoulder or elbow
- At least 1 wrist or hand

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Implant utilization when applicable
 - Soft tissue handling
 - Splinting and/or casting
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6 ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7 ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of

movement and flow

- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 36: Providing surgical management for patients with compressive neuropathy

Key Features: This EPA includes the surgical decompression of the two most common peripheral compressive neuropathies in the upper extremity: carpal tunnel syndrome, and ulnar nerve compression.

- This EPA includes understanding nerve conduction and its relevance to the planned procedure.
- The technical skills of this EPA include surgical approach and exposure, soft tissue handling, appropriate nerve protection, assessment of adequate decompression, and closure and dressing.
- This EPA may be observed in the operating room and/or minor procedure surgical area.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Procedure: decompression of ulnar nerve; cubital tunnel release; decompression of median nerve; carpal tunnel release

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: **PGY 4**

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Soft tissue handling
 - Appropriate nerve protection
 - Assessment of adequate decompression
 - Closure and dressing
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended

- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 37: Performing open biopsies

Key Features: This EPA includes surgical planning, use of imaging, and the application of biopsy principles.

- The technical skills of this EPA include surgical approach and exposure, soft tissue handling, hemostasis, sampling/collaboration with pathology, and closure and dressing.
- This EPA may be achieved in clinical or simulation setting.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow
Use Assessment form.

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: PGY 4

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Soft tissue handling
 - Hemostasis
 - Sampling/collaboration with pathology
 - Closure and dressing
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 38: Providing surgical management for patients with metastatic bone lesions

Key Features: This EPA integrates the surgeon's technical skills with their knowledge and understanding of the local and systemic nature of metastatic disease and how that affects management and the surgical approach.

- The technical skills of this EPA include surgical approach and exposure; fracture reduction, including use of adjuncts, as necessary; insertion of implant(s); closure and dressing; safe use and interpretation of fluoroscopy; and soft tissue handling.

Assessment Plan:

Direct observation by orthopedic surgeon or entrusted fellow

Assessment form collects information on:

- Procedure: upper extremity fixation; lower extremity fixation; NA

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Fracture reduction, including use of adjuncts, as necessary
 - Insertion of implant(s)
 - Closure and dressing
 - Safe use and interpretation of fluoroscopy
 - Soft tissue handling
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6 ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7 ME 3.4 Demonstrate planned course of procedure, economy of movement and flow
- 8 COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 39: Providing surgical management for pediatric patients with urgent conditions

Key Features: This EPA includes surgical management of urgent fractures and infections.

- The technical skills of this EPA include surgical approach and exposure; fracture reduction, including use of adjuncts, as necessary; internal fixation, using nails, screws, plate and/or K-wires as applicable; closure and dressing; splinting and/or casting; and safe use and interpretation of fluoroscopy.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Assessment form collects information on:

- Case mix: supracondylar fracture; lateral condyle fracture; growth plate fracture; SCFE; diaphyseal bone fracture; Monteggia fracture/dislocation; infection
- Arthrotomy: yes; no

Basis for formal entrustment decisions:

Collect 3 observations of achievement.

- At least 1 elbow fracture (supracondylar or lateral condyle fracture)
- At least 1 physeal fractures (may include SCFE)
- At least 1 arthrotomy for infection

When is unsupervised practice expected to be achieved: **PGY 4**

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Surgical approach and exposure
 - Fracture reduction, including use of adjuncts, as necessary
 - Internal fixation, using nails, screws, plate and/or K-wires as applicable
 - Closure and dressing
 - Splinting and/or casting
 - Safe use and interpretation of fluoroscopy
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position

instruments/hardware where intended

- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team
- 9** COM 3.1 Provide information about the procedure, post-op plan and risk of long term complications (e.g. growth plate) to the parents/patient

Orthopedic Surgery

EPA 40: Recognizing and providing initial management for pediatric patients with conditions requiring non-urgent intervention

Key Features: This EPA includes the management of non-urgent pediatric conditions such as DDH and clubfoot.

- The technical skills of this EPA include appropriate application of casts and harness for DDH/clubfoot.

Assessment Plan:

Direct observation by orthopedic surgeon or entrusted resident/fellow

Assessment form collects information on:

- Procedure: application of Pavlik harness; application of cast for clubfoot; application of hip spica

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

- At least 1 Pavlik or hip spica
- At least 1 cast for clubfoot

When is unsupervised practice expected to be achieved: PGY 4

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Appropriate application of casts and harness for DDH/clubfoot
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6 ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7 ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8 COL 1.2 Professional and effective communication/utilization of assistants and OR team
- 9 COM 3.1 Provide information about the procedure, post-op plan and risk of long-term complications (e.g. growth plate) to the parents/patient

Orthopedic Surgery

EPA 41: Performing posterior spinal column exposure and closure

Key Features: This EPA includes performing the technical aspects of posterior spinal column exposure and closure.

- The technical skills of this EPA include appropriate position of incision, correct level localization and verification, soft tissue handling, identification and following of appropriate tissue planes (may be midline or paraspinal), hemostasis, and closure and dressing.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Use Assessment form.

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1 ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2 ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3 ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4 ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Appropriate position of incision
 - Correct level localization and verification
 - Soft tissue handling
 - Identification and following of appropriate tissue planes (may be midline or paraspinal)
 - Hemostasis
 - Closure and dressing
- 5 ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6 ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7 ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8 COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 42: Performing laminectomy/decompression

Key Features: This EPA includes performing the technical aspects of posterior spine surgery, specifically laminectomy and/or decompression.

- The technical skills of this EPA include correct level localization and verification, safe opening of ligamentum flavum, removal of compressive elements, and appropriate care of neural element(s).

Assessment Plan:

Direct observation by orthopedic surgeon or entrusted fellow

Use Assessment form.

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: **PGY 5**

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Correct level localization and verification
 - Safe opening of ligamentum flavum
 - Removal of compressive elements
 - Appropriate care of neural element(s)
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Efficiency and flow: Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 43: Performing primary posterior instrumented spine fusions

Key Features: This EPA includes performing the technical aspects of posterior spine surgery, specifically inserting pedicle screw/instrumented fusions.

- The technical skills of this EPA include correct level localization and verification, landmarking for pedicle screw start point, insertion of pedicle screw, completion of rod insertion, preparation of fusion site and bone grafting, and appropriate care of neural element(s).
- This EPA does not require exposure or closure.

Assessment Plan:

Direct observation by orthopedic surgeon or fellow
Use Assessment form.

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: **PGY 5**

Relevant Milestones:

- 1** ME 3.1 Pre-operative plan: Assess clinical information to determine/confirm diagnosis and appropriateness of procedure
- 2** ME 3.4 Case preparation: Position patient correctly, understand approach and required instruments, be prepared to deal with probable complications
- 3** ME 1.4 Knowledge of procedure: Understand steps, potential risks, and the means to overcome them
- 4** ME 3.4 Technical performance: Perform steps of procedure efficiently, avoiding pitfalls and respecting soft tissues
 - Correct level localization and verification
 - Landmarking for pedicle screw start point
 - Insertion of pedicle screw
 - Completion of rod insertion
 - Preparation of fusion site and bone grafting
 - Appropriate care of neural element(s)
- 5** ME 3.4 Visuospatial skills: Demonstrate 3D spatial orientation, position instruments/hardware where intended
- 6** ME 3.4 Post-procedure plan: Establish an appropriate complete post procedure plan
- 7** ME 3.4 Demonstrate planned course of procedure, economy of movement and flow
- 8** COL 1.2 Professional and effective communication/utilization of assistants and OR team

Orthopedic Surgery

EPA 44: Applying external spinal fixation and/or traction

Key Features: This EPA includes performing the technical aspects of application of halo/tongs for cervical spinal stabilization.

- This EPA may be observed in patients with any indication for spinal stabilization and any technique of spinal traction.
- This EPA may be observed in clinic or simulation.

Assessment Plan:

Direct observation by orthopedic surgeon, entrusted resident/fellow

Use Assessment form.

Form collects information on:

- Setting: clinical; simulation

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: PGY 5

Relevant Milestones:

- 1 ME 1.4 Apply knowledge of key anatomic relationships
- 2 ME 3.2 Demonstrate knowledge of the indications and contraindications for the procedure
- 3 ME 3.4 Select and provide sedation and analgesia, as appropriate
- 4 ME 3.4 Position the patient appropriately
- 5 ME 3.4 Apply and tighten pins and place halo ring/tong in the appropriate position
- 6 ME 3.4 Assess and manage alignment, including the safe application of traction weight or vest
- 7 ME 3.4 Perform post procedure neurologic exam
- 8 ME 3.4 Order and review post procedure imaging
- 9 COM 5.1 Document the procedure

Orthopedic Surgery: TTP

EPA 45: Managing an outpatient clinic

Key Features: This EPA integrates the resident's medical decision-making abilities for individual cases with their abilities to function effectively in the outpatient setting, including managing a clinic load, making appropriate clinical decisions, staying on time, and working effectively with other health professionals.

- This EPA may be observed in any outpatient clinic setting, with any patient mix.
- The observation of this EPA is based on at least a half day of clinic.

Assessment Plan:

Direct or indirect observation by orthopedic surgeon

Use Assessment form.

Basis for formal entrustment decisions:

Collect 1 observation of achievement.

When is unsupervised practice expected to be achieved: PGY 4

Relevant Milestones:

- 1 ME 1.4 Apply a broad base and depth of knowledge in clinical and biomedical sciences to manage the breadth of patient presentations
- 2 ME 1.6 Carry out professional duties in the face of multiple, competing demands
- 3 S 3.4 Integrate best evidence and clinical expertise into decision-making
- 4 ME 2.4 Establish patient-centered management plans
- 5 ME 3.1 Determine the most appropriate procedures or therapies for the purpose of assessment and/or management
- 6 ME 4.1 Determine appropriate timing of next visit based on planned investigations, clinical status and/or anticipated clinical course
- 7 COM 5.1 Document clinical encounters in an accurate, complete and timely manner
- 8 L 4.1 Manage time effectively to maintain clinic flow
- 9 L 4.2 Book operative cases with appropriate urgency, duration and equipment

Orthopedic Surgery: TTP

EPA 46: Coordinating, organizing and executing a list of core surgical procedures

Key Features: This EPA integrates the resident's surgical abilities for individual cases with their abilities to function effectively as a surgeon, including managing a surgical case load, prioritizing, supervising learners and working effectively with other health professionals.

- The observation of this EPA is divided into two parts: overall surgical management; and interprofessional skills.
- The observation of the overall surgical management aspects of this EPA are based on an operative day.

Assessment Plan:

Part A: Overall surgical management

Direct observation by orthopedic surgeon

Use Assessment form.

Part B: Interprofessional skills

Multiple observers provide feedback individually, which is then collated to one report.

Assessment form collect information on:

- Observer role: circulating nurse; scrub nurse; anesthesiologist; OR attendant; junior resident; other team member

Basis for formal entrustment decisions:

Part A: Overall surgical management

Collect 1 observation of achievement.

Part B: Interprofessional skills

Collect 1 observation of achievement.

- At least 2 team members providing feedback

When is unsupervised practice expected to be achieved: **PGY 5**

Relevant Milestones:

Part A: Surgical competence

- 1** P 1.2 Prepare for surgical procedures, reviewing the list of planned operations
- 2** ME 5.2 Lead the team in the use of the surgical safety checklist, or equivalent
- 3** ME 3.4 Anticipate and prepare for technical challenges and/or significant findings
- 4** ME 3.4 Select appropriate materials and equipment for the procedure
- 5** ME 3.4 Perform surgical procedures in a skillful and safe manner
- 6** ME 3.4 Manage unexpected intraoperative findings and perioperative issues, adjusting the procedure as appropriate

- 7** ME 3.4 Establish plans for post-operative care
- 8** COL 3.2 Transition patient care safely to the post-operative team
- 9** COM 3.1 Convey information about the procedure, operative findings and patient status to the family clearly and compassionately
- 10** COM 5.1 Document surgical procedures in an accurate, complete, and timely manner
- 11** S 2.3 Allocate appropriate time for junior learners' educational activities while ensuring patient care, efficiency, resources, and safety are maintained
- 12** P 4.1 Maintain professional clinical performance in demanding or stressful clinical settings

Part B: Interpersonal skills

- 1** L 4.2 Demonstrate leadership skills in the operating room
- 2** COL 1.2 Make effective use of the scope and expertise of other health care professionals
- 3** COL 2.1 Delegate tasks and responsibilities in an appropriate and respectful manner
- 4** COL 1.3 Communicate effectively with the operating room team
- 5** S 2.3 Provide junior learners with opportunities for appropriate clinical responsibility
- 6** S 2.5 Provide junior learners with feedback to enhance learning and performance
- 7** P 1.1 Intervene when behaviors toward colleagues and/or learners undermine a respectful environment
- 8** P 4.1 Maintain professional clinical performance in demanding or stressful clinical settings

Orthopedic Surgery: TTP

EPA 47: Providing on-call coverage for an orthopedic service

Key Features: This EPA includes responding to calls from the emergency department and external physicians/surgeons.

- This EPA focuses on providing appropriate and timely advice about management and/or patient disposition as well as recognizing conditions that can be managed remotely (by telephone) versus those that require in-person assessment.

Assessment Plan:

Review of resident's management of consults by orthopedic surgeon

Assessment form collects information on:

- Case Complexity: low; high

Basis for formal entrustment decisions:

Collect 2 observations of achievement.

When is unsupervised practice expected to be achieved: **PGY 3**

Relevant Milestones:

- 1** COM 2.3 Request and synthesize patient information gathered by another health professional
- 2** ME 2.2 Integrate information from the clinical assessment to determine the patient's clinical status and health care needs
- 3** L 2.1 Apply knowledge of the resources and/or services available in various care settings
- 4** ME 2.4 Determine whether the patient needs immediate intervention and/or admission/transfer to hospital
- 5** ME 2.4 Establish a plan for management and/or for care prior to and during transport to another health setting
- 6** ME 2.4 Provide guidance for management of changes in the patient's clinical status
- 7** COM 5.1 Document telephone advice provided
- 8** P 1.1 Exhibit appropriate professional behaviors

