

SRI BALAJI VIDYAPEETH

(Deemed – to be - University u/s 3of UGC Act, 1956)

Pillaiyarkuppam, Puducherry - 607 402

Mahatma Gandhi Medical College and Research Institute

Shri Sathya Sai Medical College and Research Institute



COMPETENCY BASED POSTGRADUATE MEDICAL CURRICULUM M.S. ORTHOPAEDICS (2020 Onwards)

(As approved at the 30th Academic Council Meeting held on 28th September 2020)

Preface

Following the promulgation of the much awaited CompetencyBased Medical Education (CBME) for post graduate by the Medical Council of India (MCI)(superseded by the Board of Governors), adoption of CBME for implementing post-graduate programs is a welcome move. Sri Balaji Vidyapeeth (SBV), Puducherry, Deemedtobe University, declared u/s 3 of the UGC Act. and accredited by the NAAC with A grade, takes immense privilege in preparing such an unique document in a comprehensive mannerand most importantly the onus is on the Indian setting for the first time,with regard to the competency based medical education for post graduate programs that are being offered in the broad specialty departments. SBV is committed to making cardinal contributions that would be realised by exploring newer vistas.Thus, post graduate medical education in the country could be made to scale greater heights and SBV is poised to show the way in this direction.

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Preface

Following roll out of much awaited Competency-Based Medical Education (CBME) for undergraduate by the Medical Council of India (MCI)(superseded by the Board of Governors) , adoption of CBME for post-graduate by it is welcome move.

The MCI has laid down the syllabus course wise, listing competency to some extent, teaching learning methods and the assessment methods as well. The MCI describes competencies in three domains (knowledge, skill, and attitude). However, the most significant problem in competency-based training is the development of appropriate assessment tools.

The salient feature of this document is defining the program educational objectives (PEO) for its postgraduate program as a whole, defining program outcomes (PO) based on the competencies to be practiced by the specialist, course outcomes (CO) and program specific sub-competencies and their progression in the form of milestones. The compilation of the milestone description leads to the formation of the required syllabus. This allows the mentors to monitor the progress in sub-competency milestone levels. It also defines milestone in five levels, for each sub-competency. Although MCI has described three domains of competencies, the domain 'Attitude' is elaborated into 4 more competencies for ease of assessment. The six competency model (ACGME) for residency education: Medical Knowledge, Patient Care, Practice Based Learning and Improvement, Systems Based Practice, Professionalism, Inter personal and Communication Skills gives better clarity and in-depth explanation. The sub-competency and their milestone levels are mapped into the entrustable professional activities (EPA) that are specific to the individual postgraduate program. To make the program more relevant, PEO, PO, CO and EPAs are mapped with each other. EPA's which are activity based are used for formative assessment and graded. EPA assessment is based on workplace based assessment (WPBA), multisource feedback (MSF) and e-portfolio. A great emphasis is given on monitoring the progress in acquisition of knowledge, skill and attitude through various appraisal forms including e-portfolios during three years of residency period.



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Foreword

Post Graduate education in Orthopaedics sees heaps and bounds of updates as the science evolves to improve on patient care and research. The MCI on this context has released a comprehensive curriculum

to compete the standards globally. We at SBV coping with international standards has taken meticulous steps to design the curriculum, keeping in mind the demands and needs of the future. Our priority is to train the Post graduates at par internationally with the various competencies and skills involved in Orthopaedic education. Hence using tips from ACGME resident training programme accommodating to Indian contest and MCI guidelines our syllabus has been designed to give a quality health care education in the field of Orthopaedics.

We thank our Professors Dr.R.Nandakumar, Dr.R.Surendher Kumar, Dr.Vineet Thomas Abraham and Dr.M.Manoharan for their constant support to provide a standard syllabus. With a very special note we would like to thank Dr.Santhosh Kumar.G who spent a great amount of time in creating, editing and collating the contents of this syllabus. We also thank Dr. T. Sundararajan and Dr. Mohamed Sajeed, SSSMC&RI, who gave their support and suggestion. A grateful thanks to the external experts Prof.N.Rajagopalan and Prof.Boblee James who went through the syllabus extensively and gave suggestions. We thank our department's rest of the faculties for their cooperation and Deans office who provided us support to bring out this syllabus. We also acknowledge Mr.Kathavarayane our department secretary for his contribution.

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We greatly acknowledge Prof.N.Rajagopalan and Prof.Boblee James for their active participation as the external experts in preparing this document

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Abbreviations:

PO - Programme Outcome

CO - Course Outcome

PEO - Programme Education Outcome

MK - Medical Knowledge

PC - Patient Care P - Professionalism

PBLI - Practice Based Learning and Implementation

SBPI - System Based Practice and Implementation

DCO - Damage Control Orthopaedics

ETC - Early Total Care

ER - Emergency Room

DMARDS - Disease Modifying Anti Rheumatic Drugs

ADR - Adverse Drug Reaction

This document named postgraduate curriculum for the MS Orthopaedics has been prepared in the accordance with the document notified by Board of Governorsin suppression of MCI <https://www.mciindia.org/CMS/information-desk/for-colleges/pg-curricula-2>. This document has been prepared by the Department of Orthopaedics of MGMCRI, Puducherry, ratified by the Board of Studies on 13.05.2020 and approved by Academic Council of Sri Balaji Vidyapeeth, a deemed to be university, accredited 'A' Grade by NAAC on 16.11.2015.

Sri Balaji University
Department of Orthopaedics
Post- Graduate Program
1. Preamble

The purpose of PG education is to create specialists who would provide high quality health care and advance the cause of science through research & training. The purpose of MS Orthopaedics is to standardize Orthopaedics teaching at Post Graduate level throughout the country so that it will benefit in achieving uniformity in undergraduate teaching as well and resultantly creating competent Orthopaedician with appropriate expertise. The purpose of this document is to provide teachers and learners illustrative guidelines to achieve defined outcomes through learning and assessment. This document was prepared by subject-content specialists. The Reconciliation Board of Academic Council has attempted to render uniformity without compromise to purpose and content of the document. Compromise in purity of syntax has been made in order to preserve the purpose and content. This has necessitated retention of “domains of learning” under the heading “competencies”.

2. Program Educational Objectives (PEO)

- PEO1:** Specialist who can provide comprehensive care related to Orthopaedics over and above the physician of first contact.
- PEO2:** Leader and team member who understands health care system and acts to provide safe patient care with accountability and responsibility.
- PEO3:** Communicator possessing adequate communication skill to convey required information in an appropriate manner in various health care setting.
- PEO4:** Lifelong learner keen on updating oneself regarding the advancement in the health care field and able to perform the role of researcher and teacher
- PEO5:** Professional who understands and follows the principle of bio-ethics / ethics related to health care system.

3. Program Outcome (PO)

After three years of residency program postgraduate should be able to

- PO1:** Provide emergency care in Orthopaedic Trauma patients, triage, resuscitation and management of complications
- PO2:** Perform basic Trauma surgeries and provide per and post operative care.
- PO3:** Identify and provide appropriate care for Orthopaedics diseases.
- PO4:** Identify and provide appropriate care to all Sub speciality patients in Orthopaedics
- PO5:** Identify patient safety and system approach to medical errors.
- PO6:** Identify the needs of patients and society and provide cost effective care in the field of orthopaedics.
- PO7:** Communicate with stake holders of the health care system.
- PO8:** Perform literature search and critical appraisal of literature and involve in research related to orthopaedics.
- PO9:** Informed consent and shared responsibilities.

4. Course and Course Objectives (CO)

4.1. Course 1 (C1) : Basic Sciences as applied to Orthopaedics

Objective: At the end of three years post graduate should be able to

- C1.1. Apply knowledge about pre and para clinical science related to orthopaedics.
- C1.2. Should have knowledge about metallurgy in Orthopaedics
- C1.3. Should have knowledge about orthopaedic radiology

4.2. Course 2 (C2): Traumatology and rehabilitation

Objective: At the end of three years post graduate should be able to

- C2.1. Provide quality care to the community in the diagnosis and management of soft tissue injuries, fractures and dislocations
- C2.2. Identify all trauma complications and provide effective management
- C2.3. Manage effectively all orthopaedic emergencies and if necessary, make appropriate referrals
- C2.4. Provide appropriate rehabilitation related to orthopaedics.
- C2.5. Provide vital statistics related to Orthopaedics

4.3. Course 3 (C3): Orthopaedic Diseases

Objective : At the end of three years post graduate should be able to

- C3.1. Provide quality care to the community in the diagnosis and management of common Orthopaedic diseases including bone tumours and Bone & Joint infections and give appropriate care and make referrals if necessary
- C3.2. Identify all Orthopaedic diseases of Bone & Joints including peripheral nerve lesions and give appropriate care and make referrals if necessary
- C3.3. Identify orthopaedic related congenital abnormalities and paediatric Orthopaedic diseases and manage appropriately or make referrals accordingly

4.4. Course 4 (C4): Recent advance and Subspecialty in Orthopaedics

Objective: At the end of three years post graduate should be able to

- C4.1. Evaluate and Manage common Spinal disorders and make appropriate referrals if necessary
- C4.2. Identify and manage sports related injuries and make appropriate referrals if necessary
- C4.3. Identify and manage arthritis of joints and disorders and assist in Arthroplasty
- C4.4. Identify and initiates basic management and make referrals appropriately for other subspecialty cases as may be deemed fit.
- C4.5. Perform critical appraisal of medical literature and do research in orthopaedics to improve the quality of care in community.
- C4.6. Perform Critical appraisal of medical literature.

The PEO, PO and the CO are mapped with each other.(Table 1)

Table1. Mapping of PEO, PO and CO

	PEO 1				PEO2		PEO3	PEO4	PEO5
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
C1	Y	Y	Y		Y	Y		Y	Y
C2	Y	Y			Y	Y	Y	Y	Y
C3			Y		Y	Y	Y	Y	Y
C4			Y	Y	Y	Y	Y	Y	Y

All courses run concurrently for 3 years with a summative assessment at the end of 3 years. The program is competency based and the competencies, sub-competencies and milestones are detailed. These are mapped to the Entrustable professional activities (EPA) identified as essential for a specialist. Formative assessment is carried out every three months using appropriate tools, for identifying eligibility for transfer of trust.

5. Competencies, Sub-competencies and Milestone

At the end of the MS course in Orthopaedics, the student should have acquired various competencies i.e. medical knowledge, patient care, interpersonal communication skill, system based practice, practice based learning and implementation and professionalism. Details of each with milestone as level is described below.(Table 2)

Table 2. Description of Competencies, Sub-competencies and Milestone

Medical Knowledge (MK): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care)

Domain	Level 1	Level 2	Level 3	Level 4	Level 5
MK1 Knowledge of musculoskeletal anatomy, normal and abnormal Orthopaedic Radiology and Normal and abnormal Orthopaedic related investigations	Has limited knowledge of Orthopaedic Anatomy and basic investigation	Demonstrates good knowledge of Ortho radiology	Correlates anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, fracture dislocation, joint narrowing, subchondral cysts, sclerosis, tumour conditions) and basic blood investigations. Has knowledge of routine CT and MRI.	Demonstrate knowledge of advance imaging like CT angiography, specific MRI, DEXA and special test like TB PCR, MGIT, BIOPSY, etc	Has the ability to teach normal and abnormal imaging and orthopaedic related investigations to Junior Residents
MK 2 Knowledge of Splints and tractions and their uses in Orthopaedics	Has limited knowledge of Splints and traction in Orthopaedics	Demonstrate Knowledge of injury and the need of appropriate splints and tractions	Demonstrate basic knowledge of mechanism of injury and appropriate splinting and traction based on that injury.	Demonstrate advanced knowledge of mechanism of injury and appropriate splinting and traction based on that injury. Eg. Skull tongs.	Has knowledge of complications associated with splints and tractions
MK 3 Knowledge of wound healing and related complications	Has knowledge of Anatomy and Physiology of wound healing	Demonstrate knowledge of regional gross anatomy and phases of inflammation and healing	Demonstrates knowledge of prosthetic and orthotic devices Demonstrate knowledge of micro-anatomy and cellular anatomy.	Demonstrates knowledge of the phases of soft tissue healing and cellular mechanisms	Demonstrates knowledge of the details of tissue healing and cellular Physiology of treatment modalities
MK 4 Knowledge of Orthopaedic Trauma and disease and comorbid conditions	Has limited knowledge of diagnosis of patients under treatment.	Demonstrates advance knowledge of diagnosis of patients.	Demonstrates advance knowledge of different patients and their comorbid conditions, drug history and ADR.	Demonstrates advanced knowledge of injuries and Orthopaedic diseases	Demonstrates knowledge of complications associated with Orthopaedic injuries and diseases

MK 5 Knowledge of Orthopaedic trauma and met-allurgy	Demonstrates knowledge of basic anatomy and pathophysiology of injured patients	Knows fractures and soft tissue classifications	Understands and interprets basic imaging studies. Understands sources of bleeding. List associated injury patterns. Has knowledge of metallurgy and principles of treatment of fractures. Has knowledge of surgical approaches.	Understands the spectrum of instability of the multiply injured patient. Understands the contribution of pelvic injury to hemodynamic status. Understands implications of soft tissue injury on fracture care. Has knowledge of advancement in metallurgy and new researches pertaining to this field.	Understands the mechanical requirements and implants choices to achieve stable constructs. Demonstrates knowledge of the literature regarding damage control and early total care. Understands treatment options for complications
MK 6 Knowledge of emergency trauma care	Understands the basic pathophysiology of the multiply injured patient	Demonstrates knowledge of basic surgical approaches and interprets basic imaging studies	Recognizes common complications and understand the spectrum of instability of the multiply injured patients	Understands principles of damage control and early total care. Demonstrates understanding of complex pathophysiology of the multiply injured patients	Understands the methods of long bone and pelvis stabilization. Demonstrates knowledge of complex and combined approaches
MK 7 Knowledge of all sub speciality in Orthopaedics	Demonstrates knowledge of pathophysiology related to Orthopaedic sports medicine, Spinal disorders, inflammatory diseases and degenerative joint diseases	Correlates anatomic knowledge to imaging findings on basic imaging studies and has advanced knowledge of pathophysiology and prognosis of orthopaedic related diseases.	Demonstrates knowledge of ligaments injury, Spinal diseases and natural history of arthritic condition of joints. Has knowledge of surgical approaches.	Demonstrates knowledge of nonoperative treatment options and surgical indications for sports related injuries, Spinal disorders and arthritis.	Understand pathophysiology of concomitant injuries and biomechanics of injury. Understands non-operative treatment options and surgical indications in spinal disorders, joint disorders and sports related injuries

<p>MK 8 Knowledge of Orthopaedic diseases and rehabilitation</p>	<p>Demonstrates knowledge of pathophysiology related to Orthopaedic disease like bone and joint infection and tumours. Demonstrates knowledge of normal development of musculoskeletal system</p>	<p>Demonstrates basic knowledge of natural history of Orthopaedics diseases (e.g Tumours, infections, arthritis, congenital anomalies, metabolic disorders and other miscellaneous conditions). Demonstrates knowledge of rehabilitation protocol.</p>	<p>Correlates anatomic findings on basic imaging studies (e.g., osteophyte formation, joint narrowing, subchondral cysts, sclerosis, tumour conditions). Demonstrates knowledge of patho anatomy and basic surgical approaches..</p>	<p>Demonstrates knowledge of non-operative treatment options and surgical indications. Correlates anatomic knowledge to imaging findings on advanced imaging studies (e. g. bone loss, articular deformity, subluxation)</p>	<p>Understands the effects of intervention on natural history of arthritis, tumours, bone & joint infections, congenital anomalies, metabolic and other miscellaneous conditions. Understands alternative surgical approaches for the specific disease condition. Understands basic presurgical planning and templating. Understands how to prevent / avoid potential complications</p>
<p>MK 9 Knowledge of Pharmacology of drugs in general and specific for Orthopaedics</p>	<p>Has knowledge in Pharmacology of drugs commonly used.</p>	<p>Has limited knowledge of specific drugs used in Orthopaedics</p>	<p>Has good knowledge of specific drug used in Orthopaedics</p>	<p>Demonstrates knowledge of drugs used in specific Orthopaedic diseases like inflammatory arthritis, Osteoporosis and Tumours</p>	<p>Demonstrates knowledge of all the specific drugs used in Orthopaedics and their adverse effects</p>
<p>MK 10 Knowledge of Orthopaedic diseases and injury</p>	<p>Has limited knowledge of fractures and orthopaedic diseases and communicates with patients</p>	<p>Has good knowledge of fractures and orthopaedic diseases and communicates with patients</p>	<p>Has knowledge of comorbid conditions of patients and obtains specific consults for the same</p>	<p>Has knowledge of metallurgy and orthopaedic related implants and their costs.</p>	<p>Demonstrates knowledge of Surgical procedures for the specific disease condition</p>

MK 11 Knowledge of research and review of literature	Has limited knowledge of search of literature related to Ortho- paedics	Has good knowl- edge of search of literature related to Orthopaedics	Demonstrates knowledge of advanced literature search for specific Orthopaedic conditions	Demonstrates knowl- edge of current literature and alternative treatment and recent advances	Capable of writing a manuscript under su- pervision
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Patient Care (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

Domain	Level 1	Level 2	Level 3	Level 4	Level 5
PC1 Interpret laboratory data, imaging studies, and other tests required for the Orthopaedics	Demonstrate basics skills for routine patient care and performance of examination of musculoskeletal system	Orders appropriate radiographs and blood investigations	Identifies abnormalities in radiographs, CT, MRI and blood investigations.	Able to interpret advance imaging in CT & MRI and orthopaedics related investigations.	Able to interpret and correlate clinically the advance imaging and other investigations.
PC 2 Provide appropriate Splints and tractions	Demonstrates basic skills in assessing splints and tractions	Able to provide basic splints under supervision. Able to apply orthotic devices as essential.	Able to provide basic splints and tractions with limited supervision. Able to identify the need of prosthetic devices patient specific.	Able to provide all splints and tractions without supervision	Able to teach Junior Resident and Interns basic splints and Tractions
PC 3 Give essential wound care and identifies complications	Demonstrates basic skills of sterile dressings	Able to do appropriate wound care under supervision	Able to do appropriate wound care without supervision and able to identify complications	Able to identify wound complications and able to give initial care for the same.	Able to identify major soft tissue related complications and communicates with team members and give referral appropriately if needed.
PC 4 Documents the progress and obtain appropriate consents	Obtains an accurate history from the patient and documentation	Performs relevant clinical examination and documentations	Able to diagnose the Orthopaedic diseases and injury and documentations. Capable of obtaining informed consent for procedures and surgeries.	Able to make appropriate treatment plans and documentations.	Able to identify complications and give appropriate referrals and documentations

<p>PC 5 Perform and assist in Orthopaedic Trauma surgeries</p>	<p>Obtains an accurate history and physical examination</p>	<p>Identifies an unstable patient. Orders appropriate imaging studies. Appropriately assesses soft tissue status. Provide appropriate splints and plaster for fractures. Reduces simple fractures.</p>	<p>Formulates basic plan for treatment of fractures. Identifies the need for multispecialty involvement. Recognizes soft tissue conditions that require urgent treatment. Performs simple wound debridement, K wire fixation and external fixator application of fractures. He can assist all minor and major trauma. He can perform trauma surges under supervision. (ex., Both bone forearm ORIF, humerus ORIF, tibia and femur nail-ing).</p>	<p>Performs standard surgical approaches. Executes simple fracture fixation like both bone forearm fractures, tibia and femur IMIL, trochanter fixation without supervision. He is skillful in assisting major trauma like pelvic acetabular surgeries and spine stabilization.</p>	<p>Understands the nuances of trauma. Completes comprehensive pre-operative planning with alternatives. Modifies and adjusts post-operative treatment plan as needed and capable of treating simple complications.</p>
<p>PC 6 Evaluates Orthopaedic trauma patients and initiates treatment plans</p>	<p>Assesses trauma patients.</p>	<p>Identifies unstable patient and the need for multispecialty involvement</p>	<p>Implements strategies to optimize host status creates basic pre-operative plan</p>	<p>Mobilizes the injured patient to operating room for emergent care</p>	<p>Demonstrates basic psycho motor skills of emergency stabilization skeletally and hemodynamically in ER.</p>

PC 7 Assists in all sub speciality surgeries in Orthopaedics and able to perform basic surgeries	Obtains history and performs basic physical examination of Spine and joints	Appropriately orders basic imaging studies. Prescribes non-operative treatments	Appropriately interprets basic imaging studies. Provides basic perioperative management. Able to perform diagnostic knee arthroscopy, hemiarthroplasty and spine surgical approaches.	Completes pre-operative planning with instrumentation, graft selection and implants. Examines injury under anesthesia (e.g., complete ligament examination). Able to assist in arthroscopy ligament reconstructions, arthroplasty and spine surgeries.	Provides post-operative management and rehabilitation (e.g., WB status, brace, ROM, quads strengthening)
PC 8 Evaluates Orthopaedic diseases and give emergency care for the same	Obtains history and performs basic physical examination. Appropriately orders basic imaging studies	Prescribes non-operative treatments. Provides basic perioperative management. Lists potential complications of the orthopaedic disease.	Obtains focused history and performs focused examination and gait analysis. Appropriately interprets basic imaging studies. Able to perform incision & drainage, debridement, arthroscopy of joints, biopsy and give intra-articular injections.	Completes pre-operative planning with instrumentation and implants. Performs basic surgical approaches. Provides post-operative management and rehabilitation.	Appropriately orders and interprets advanced imaging studies / lab studies. Completes comprehensive pre-operative planning with alternatives. Capable of performing straight forward surgeries
PC 9 Prescribes medication in general and related to Orthopaedics	Prescribes general medication	Prescribes analgesics like NSAIDs and other drugs specific for Orthopaedic conditions	Prescribes antibiotics and identifies complications related to the drugs	Prescribes DMARDs, drugs for Osteoporosis and degenerative arthritis and identifies complications related to the drugs	Capable of identifying adverse drug reactions and give treatment for the same

PC 10 Provide health care services aimed at preventing health problems	Gives care and concern to the patients and listens to them.	Enquire for patient and family understanding of illness and management plans.	Communicates effectively in stressful emergent and complex situations to the patients and relatives. Communicates with the senior and juniors inter and intra departmental effectively.	Delivers bad news to the families about complications	Capable of communication in most challenging situations
SBP 1 Patient Safety and Systems Approach to Medical Errors: Participate in identifying system errors and implementing potential systems solutions	Describes basic levels of systems of care for orthopaedic diseases and trauma	Demonstrates an ability to give examples of cost containment and value implications of patient care	Understand the economic challenges of patient care within the health system	Orders and schedules tests in an appropriate way for individual patients, balancing quality and safety	Navigates the economic differences between different health care systems for patients
PBLI 1 Systematically analyze practice using quality improvement methods and implement changes with the goal of practice improvement	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues	Develops a learning plan based on feedback with some external assistance	Continually assesses performance by evaluating feedback and assessments	Uses patient care experiences to direct learning. Accurately assesses areas of competence and deficiencies and modifies learning plan	Demonstrates the ability to select an appropriate evidence-based information tool to answer specific questions while providing care. Demonstrates use of published review articles or guidelines to review common topics in practice

<p>P 1 Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles</p>	<p>Consistently demonstrates behavior that conveys caring, honesty, and genuine interest in patients and families</p>	<p>Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value.</p>	<p>Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care</p>	<p>Demonstrates an understanding of the importance of compassion, integrity, respect, sensitivity, and responsiveness while exhibiting these attitudes consistently in common and uncomplicated situations. Exhibits these attitudes consistently in complex and complicated situations.</p>	<p>Recognizes ethical violations in professional and patient aspects of medical practice. Develops and uses an integrated and coherent approach to understanding and effectively working with others to provide good medical care that integrates personal standards with standards of medicine</p>
<p>IPC 1 Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals</p>	<p>Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team</p>	<p>Recognizes and communicates role as a team member to patients and staff</p>	<p>Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team</p>	<p>Supports activities of other team members, communicates their role to the patient and family Examples: Hand-offs, transitions of care, communicates with the health care providers and staff members</p>	<p>Able to facilitate, direct, and delegate team based patient care activities. Able to identify and rectify problems with team communication</p>

6. Syllabus

6.1. Course 1 Basic Sciences as applied to Orthopaedics:

6.1.1. Basic Sciences

- Anatomy and function of joints
- Bone structure and function
- Growth factors and fracture healing
- Cartilage structure and function
- Structure and function of muscles and tendons
- Tendon structure and function
- Metallurgy in Orthopaedics
- Stem Cells in Orthopaedic Surgery
- Gene Therapy in Orthopaedics
- Diagnostic Imaging in Orthopaedics

(Should know the interpretation and Clinical Correlation of the following):

- Digital Subtraction Angiography (DSA)
- MRI and CT in Orthopaedics
- Musculoskeletal USG
- PET Scan
- Radio-isotope bone scan
- Shock
- Crush syndrome
- Disseminated Intravascular Coagulation (DIC)
- Acute Respiratory Distress Syndrome (ARDS)

6.2. Course 2: Traumatology and rehabilitation:

- Definitions, types, grades, patterns and complications
- Pathology of fractures and fracture healing
- Clinical and Radiological features of fractures and dislocations
- General principles of fracture treatment
- Recent advances in internal fixation of fractures
- Locking plate osteosyntheses
- Less Invasive Stabilisation System (LISS)
- Ilizarov technique

- Bone grafting and bone graft substitutes
- Open fractures and soft tissue coverage in the lower extremity
- Compartment syndrome
- Fractures of the upper extremity and shoulder girdle
- Fractures of the lower extremity
- Fractures of the hip and pelvis
- Mal united fractures
- Delayed union and non union of fractures
- Fractures/dislocations and fracture - dislocations of spine
- Acute dislocations
- Old unreduced dislocations
- Recurrent dislocations
- Ankle injuries
- Knee injuries
- Shoulder and elbow injuries
- Wrist and hand injuries
- Prosthetics and Orthotics
- Fractures and dislocations in children
- Spinal trauma
 - Rehabilitation of paraplegics/quadruplegics
 - Management of a paralyzed bladder
 - Prevention of bed sores and management of established bedsores
 - Exercise programme and Activities of Daily Living(ADL)
 - Psychosexual counselling
- Triage, Disaster Management, BTLIS and ATLS

6.3 Course 3:Orthopaedic Diseases

- Rickets and Osteomalacia
- Osteoporosis
- Scurvy
- Mucopolysaccharoidoses
- Fluorosis
- Osteopetrosis

- Hyperparathyroidism
- Gigantism, Acromegaly
- Pyogenic Haematogenous Osteomyelitis
- Acute and Chronic
- Septic arthritis
- Fungal infections
- Miscellaneous infections
- Gonococcal arthritis
- Bone and joint brucellosis
- AIDS and the Orthopaedic Surgeon (universal precautions)
- Musculoskeletal Manifestations of AIDS
- Pott's spine
- Tubercular synovitis and arthritis of all major joints
- General considerations
- Polio Lower limb and spine
- Management of Post Polio Residual Palsy(PPRP)
- Cerebral Palsy
- Myopathies
- Entrapment Neuropathies
- Osteoarthritis
- Calcium Pyrophosphate Dihydrate (CPPD),Gout
- Collagen diseases
- Benign bone tumours
- Malignant bone tumours
- Tumor like conditions
- Metastatic bone Tumors
- Diseases of muscles
- Fibrous Dysplasia
- Unclassified diseases of bone
- Paget's disease
- Peripheral vascular disease
- Orthopaedic manifestations of bleeding disorders Regional Orthopaedic Conditions of Adults and Children

- The spine
- The shoulder
- The elbow
- The hand
- The wrist
- The hip
- The knee
- The foot and ankle
- The pelvis
- Arthrodesis of lower extremity and hip
- Arthrodesis of upperextremity
- Arthrodesis of spine
- Amputations and disarticulations in the lower limb
- Amputations and disarticulations in the upper limb
- Perthes' disease
- Slipped capital femoral epiphysis
- Congenital Dislocation of Hip(CDH)
- Neuromuscular disorders
- Prolapsed Inter Vertebral Disc(PIVD)
- Lumbar Canal Stenosis (LCS)
- Spondylolysis /Spondylolisthesis
- Lumbar Spondylosis
- Ankylosing Spondylitis
- Spinal fusion: various types and their indications

7. Recent advances and sub speciality in Orthopaedics

- Orthopaedic metallurgy
- Bio-degradable implants in Orthopaedics
- Bone substitutes
- Bone Banking
- Biomechanics of joints and replacement of the following joints.
- Knee
- Ankle

- Shoulder
- Elbow
- General principles of Arthroscopy
- Arthroscopy of knee and ankle
- Arthroscopy of shoulder and elbow
- Autologous chondrocyte implantation
- Mosaicplasty
- Video assisted Thoracoscopy(VATS)
- Endoscopic spine surgery
- Metal on metal arthroplasty of hip
- Surface replacements of joints
- Microsurgical techniques in Orthopaedics
- Designing a modern orthopaedic operation theatre
 - Sterilization
 - Theatre Discipline
 - Laminar airflow
 - Modular OTs
- Prolapsed Inter Vertebral Disc(PIVD)
- Lumbar Canal Stenosis(LCS)
- Spondylolysis/Spondylolisthesis
- Lumbar Spondylosis
- Ankylosing Spondylitis
- Spinal fusion: various types and their indications

8. Teaching and Learning Methods

8.1 Postgraduate Training Teaching methodology should be imparted to the students through

- Emphasis should be given to various small group teachings rather than didactic lectures.
- CASE PRESENTATION once a week in the ward, in the outpatient department and special clinics.
- Seminars / Symposia – Twice a month; Theme based student centred.
- Journal club/ Review : Twice a month
- Academic grand ward rounds: Twice a month presentation of cases by residents and clinically applicable discussions.
- ORTHO RADIOLOGY MEETS: Twice a month discussions amongst Ortho &

Radiology Residents under facilitation of faculty on various imaging modalities used and its interpretation

- ORTHO SURGICAL PATHOLOGICAL MEET: Special emphasis on the surgical pathology radiological aspect of the case in the pathology department. Clinician (Ortho resident) presenting the clinical details of the case, radiology PG student describes the Radiological findings and its interpretation and Pathology student describes the morbid anatomy and histopathology of the same case.
- SKILLS LAB SESSIONS: Once a fortnight for all two years.
- Cadaveric Dissection: All first year and second year Post Graduates are exposed to various surgical approaches.
- Clinical teaching in the OPD, Emergency room, ICU, OR as per the situation.
- Mortality & Morbidity meetings with SURGICAL AUDIT: Once a month
- By encouraging and allowing the students to attend and actively participate in CMEs, Conferences by presenting papers.
- Maintenance of log book :

E-portfolio:- It is an electronic portfolio to be maintained by the resident to record their activities under the section:

- EPA,
- Daily log
- Patient care
- Procedure
- Dissertation
- Academic activities (Seminar, symposium, case presentation, journal club)
- Co-curricular activities (Conference, CME, Workshop),
- Teaching Assignments,
- Awards and achievements
- Outreach activities. o E-portfolio will be checked and assessed periodically by the faculty members. This will enable to monitor progress of the resident, his level of attainment of milestone and impart the training accordingly.
- Writing thesis following appropriate research methodology, ethical clearance and good clinical practice guidelines.
- The postgraduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.
- A postgraduate student of a postgraduate degree course in broad specialities / super specialities would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published / accepted for publication

/ sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.

- Every year an exclusive teaching programme for Post Graduates has been conducted (MORE- MGMCRI Orthopaedic Revision Education)
- Department encourages e-learning activities.

8.2 Practical and Clinical Training

- Emphasis should be on self-directed learning, group discussions and case presentations.
- Student should be trained about proper History taking, Clinical examination, advising / ordering relevant investigations, their interpretation and instituting medical / surgical management by posting students in OPD, specialty clinics, wards and operation theatres.

8.3 Rotations:

- Details of 3 years posting in the PG programme (6 terms of 6 months each)

	1st Mon	2nd Mon	3rd Mon	4th Mon	5th Mon	6th Mon	7th Mon	8th Mon	9th Mon	10th Mon	11th Mon	12th Mon
1st year	PU	PU	PU	PU	R1	R1	R2	R2	R3	R4	R4	R4
2nd year	PE1	PE2	PU	PU	R1	R1	R2	R2	R3	R4	R4	R4
3rd year	R1	R1	R2	R2	R3	R3	R4	R4	PU	PU	PU	PU

PU:Parent Unit, R 1 - 4: Rotations through all units, PE1:2 weeks of Neurosurgery and 2 weeks of **Plastic Surgery, PE2: 4 weeksTrauma (EMS)**

8.4 Allied Postings

* Allied posts should be done during the course – for 8 weeks

- Neurosurgery - 2 weeks
- Plastic Surgery - 2 weeks
- Trauma (EMS) - 4 weeks

Details of training in the subject during resident posting The student should attend to the duties (Routine and emergency) and will be attending Out patient, Department and special clinics, Inpatients and Operation Theatre. Also will be writing clinical notes regularly and maintains records

9. Assessment

9.1 Formative Assessment:

Formative assessment is continual and assess medical knowledge, patient care, procedural & academic skills, interpersonal communication skills, system based practice, self-directed learning and professionalism of the activities mentioned every 3/6monthly. EPAs are listed as below(Table 3)with description of each EPA (Table 4). Progress of the students is recorded after discussion with the student in Entrust able Professional Activity (EPA) assessment form Annexure-1.These EPAs are also mapped

with PO and CO. (Table 5)

9.1.1 List of the Entrustable Professional Activity

Table 3. List the of Entrustable Professional Activity (EPA)

EPA No.	GENERAL
1	Gather a history and perform a physical examination
2	Prioritize a differential diagnosis following a clinical outcome
3	Recommend and interpret common diagnostic and screening tests
4	Enter and discuss orders and prescriptions
5	Document a clinical encounter in the patient record
6	Provide an oral presentation of a clinical encounter
7	Recognize a patient requiring urgent or emergent care and initiate evaluation and management
8	Give or receive a patient handover to transition care responsibility
9	Obtain informed consent for test and/or procedures
10	Collaborate as member of an inter professional team
11	Form clinical questions and retrieve evidence to advance patient care.
ORTHOPAEDICS	
12	Orthopaedic Radiology and related investigations
13	Splints and tractions
14	Wound care
15	Medical documentation
16	Performing and assisting Trauma Procedures including metallurgy knowledge
17	Triaging and resuscitation in Orthopaedic emergencies and referrals (Inter & Intra Department)
18	Sub speciality surgeries
19	Orthopaedic diseases and Rehabilitation
20	Prescription and medications in Orthopaedics
21	Communication skills
22	Research and critical appraisal of literature

Description of Entrustable Professional Activity with relevant domains of competence

Table 4. EPAs, Competency levels and entrustability

EPA 1: Gathering a history and performing physical examination	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to perform an accurate complete or focused history and physical exam in a prioritized, organized manner without supervision and with respect for the patient. The history and physical examination should be tailored to the clinical situation and specific patient encounter. This data gathering and patient interaction activity serves as the basis for clinical work and as the building block for patient evaluation and management.
2. Most relevant domains of competence:	MK, PC, ICS, P
3. Competencies within each domain critical to entrustment decisions:	MK 6.2, MK 7.2 &8.2, PC 6.1,7.1 &8.1, IPC 1.2, P1.2
4. Methods of assessment	<ol style="list-style-type: none"> 1. Periodic written exam (Every month) 2. Mini clinical exams 3. Workplace assessment by Faculty 4. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not understand the basic pathophysiology of the multiply injured patient. Does not demonstrate knowledge of basic surgical approaches and interprets basic imaging studies. Unable to recognize common complications and understand the spectrum of instability of the multiply injured patients. Does not have knowledge of DCO and ETC. Does not demonstrate knowledge of pathophysiology related to Orthopaedic sports medicine, Spinal disorders, inflammatory diseases and degenerative joint diseases. Doesn't correlate anatomic knowledge to imaging findings on basic imaging studies. Does not have knowledge of ligament injury, spinal diseases and natural history of arthritic condition of joints. Does not demonstrate	Understands the basic pathophysiology of the multiply injured patient. Demonstrates knowledge of basic surgical approaches and interprets basic imaging studies. Recognizes common complications and understand the spectrum of instability of the multiply injured patients. Has knowledge of DCO and ETC. Demonstrates knowledge of pathophysiology related to Orthopaedic sports medicine, Spinal disorders, inflammatory diseases and degenerative joint diseases. Correlates anatomic knowledge to imaging findings on basic imaging studies. Demonstrates knowledge of ligaments injury, Spinal diseases and natural history of arthritic condition of joints. Demonstrates knowledge of pathophysiology related to

	<p>knowledge of pathophysiology related to Orthopaedic disease like bone and joint infection and tumours. Does not demonstrate knowledge of normal development of musculoskeletal system. Does not have basic knowledge of natural history of Orthopaedics diseases (e.g. Tumours, infections, arthritis, congenital anomalies, metabolic and other miscellaneous conditions). Does not correlates anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, joint narrowing, subchondral cysts, sclerosis, tumour conditions). Does not demonstrates knowledge of patho anatomy and basic surgical approaches.</p>	<p>Orthopaedic disease like bone and joint infection and tumours. Demonstrates knowledge of normal development of musculoskeletal system. Demonstrates basic knowledge of natural history of Orthopaedics diseases (e.g. Tumours, infections, arthritis, congenital anomalies, metabolic and other miscellaneous conditions). Correlates anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, joint narrowing, subchondral cysts, sclerosis, tumour conditions). Demonstrates knowledge of patho anatomy and basic surgical approaches.</p>
PC	<p>Not capable of assessing trauma patients. Does not identify unstable patients and the need for multispeciality involvement. Does not have knowledge to optimize host status and to creates basic pre-operative plan. Does not obtains history and performs basic physical examination of Spine and joints. Does not appropriately orders basic imaging studies. Unable to prescribe non-operative treatments. Does not interprets basic imaging studies. Does not provides basic per operative management. He is not able to perform diagnostic knee arthroscopy and hemiarthroplasty. Does not appropriately orders basic imaging studies. Unable to prescribe non-operative treatments. Provides basic per operative management. Lists potential complications of the orthopaedic disease. Does not obtain focused history and perform proper examination. Does not appropriately interprets basic imaging studies. Not able to perform incision & drainage, arthrotomy of joints, biopsy and give intra-articular injections.</p>	<p>Assesses trauma patients. Identifies unstable patients and the need for multispeciality involvement. Implements strategies to optimize host status creates basic pre-operative plan. He is capable doing damage control orthopaedic procedures. Obtains history and performs basic physical examination of Spine and joints. Appropriately orders basic imaging studies. Prescribes non-operative treatments. Appropriately interprets basic imaging studies. Provides basic per operative management. Able to perform diagnostic knee arthroscopy, hemiarthroplasty and spine exposure. Appropriately orders basic imaging studies. Prescribes non-operative treatments. Provides basic per operative management. Lists potential complications of the orthopaedic disease. Obtains focused history and performs focused examination and gait analysis. Appropriately interprets basic imaging studies. Able to perform incision & drainage, arthrotomy of joints, biopsy and give intra-articular injections.</p>

IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team.
P	Does not consistently demonstrate behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care

EPA 2: Prioritizing a differential diagnosis following a clinical encounter	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to integrate patient data to formulate an assessment, developing a list of potential diagnoses that can be prioritized and lead to selection of a working diagnosis
2. Most relevant domains of competence:	MK, PC, IPC, PBLI, P
3. Competencies within each domain critical to entrustment decisions:	MK 6.2,7.2&8.2, PC 6.1,7.1&8.2, IPC 1.2,PBLI 1.1, P1.1
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every month) 2. Mini clinical exams 3. Workplace assessment by Faculty 4. Multisource feedback <ol style="list-style-type: none"> a. Patient, b. Nurses, c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	<p>Does not understand the basic pathophysiology of the multiply injured patient. Does not demonstrate knowledge of basic surgical approaches and interprets basic imaging studies. Unable to recognize common complications and understand the spectrum of instability of the multiply injured patients. Does not have knowledge of DCO and ETC. Does not demonstrate knowledge of pathophysiology related to Orthopaedic sports medicine, Spinal disorders, inflammatory diseases and degenerative joint diseases. Doesn't correlate anatomic knowledge to imaging findings on basic imaging studies. Does not have knowledge of ligaments injury, Spinal diseases and natural history of arthritic condition of joints. Does not demonstrate knowledge of pathophysiology related to Orthopaedic disease like bone and joint infection and tumours. Does not demonstrate knowledge of normal development of musculo skeletal system. Does not have basic knowledge of natural history of Orthopaedics diseases (e.g Tumours, infections, arthritis, congenital anomalies, metabolic and other miscellaneous conditions). Does not correlate anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, joint narrowing, subchondral cysts, sclerosis, tumour conditions). Does not demonstrate knowledge of patho anatomy and basic surgical approaches.</p>	<p>Understands the basic pathophysiology of the multiply injured patient. Demonstrates knowledge of basic surgical approaches and interprets basic imaging studies. Recognizes common complications and understand the spectrum of instability of the multiply injured patients. Has knowledge of DCO and ETC. Demonstrates knowledge of pathophysiology related to Orthopaedic sports medicine, Spinal disorders, inflammatory diseases and degenerative joint diseases. Correlates anatomic knowledge to imaging findings on basic imaging studies. Demonstrates knowledge of ligaments injury, Spinal diseases and natural history of arthritic condition of joints. Demonstrates knowledge of pathophysiology related to Orthopaedic disease like bone and joint infection and tumours. Demonstrates knowledge of normal development of musculoskeletal system. Demonstrates basic knowledge of natural history of Orthopaedics diseases (e.g Tumours, infections, arthritis, congenital anomalies, metabolic and other miscellaneous conditions). Correlates anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, joint narrowing, subchondral cysts, sclerosis, tumour conditions). Demonstrates knowledge of patho anatomy and basic surgical approaches.</p>

PC	<p>Un capable of assessing trauma patients. Does not identify unstable patients and the need for multispeciality involvement. Does not have knowledge to optimize host status and to creates basic pre-operative plan. Does not obtains history and performs basic physical examination of Spine and joints. Does not appropriately orders basic imaging studies. Unable to prescribe non-operative treatments. Does not interprets basic imaging studies. Does not provides basic per operative management. He is not able to perform diagnostic knee arthroscopy and hemiarthroplasty. Does not appropriately orders basic imaging studies. Unable to prescribe non-operative treatments. Provides basic per operative management. Lists potential complications of the orthopaedic disease. Does not obtain focused history and perform proper examination. Does not appropriately interprets basic imaging studies. Not able to perform incision & drainage, arthrotomy of joints, biopsy and give intra-articular injections.</p>	<p>Assesses trauma patients. Identifies unstable patients and the need for multispeciality involvement. Implements strategies to optimize host status creates basic pre-operative plan. He is capable doing damage control orthopaedic procedures. Obtains history and performs basic physical examination of Spine and joints. Appropriately orders basic imaging studies. Prescribes non-operative treatments. Appropriately interprets basic imaging studies. Provides basic per operative management. Able to perform diagnostic knee arthroscopy, hemi arthroplasty and spine exposure. Appropriately orders basic imaging studies. Prescribes non-operative treatments. Provides basic peroperative management. Lists potential complications of the orthopaedic disease. Obtains focused history and performs focused examination and gait analysis. Appropriately interprets basic imaging studies. Able to perform incision & drainage, arthrotomy of joints, biopsy and give intra-articular injections.</p>
IPC	<p>Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team</p>	<p>Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team</p>
PBLI	<p>Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments</p>	<p>Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments</p>

P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
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EPA 3: Recommending and interpreting common diagnostic and screening tests	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to select and interpret common diagnostic and screening tests using evidence-based and cost- effective principles as one approaches a patient in any setting.
2. Most relevant domains of competence:	MK, PC, IPC, PBLI, P
3. Competencies within each domain critical to entrustment decisions:	MK 1.2, PC 1.2, PBLI1.2, P 1.2
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every 6 months) 2. Workplace assessment by Faculty 3. Multisource feedback <ol style="list-style-type: none"> a. Patient, b. Nurses, c. Health care workers, d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not have good knowledge of Ortho Radiology and does not orders appropriate radiographs. Unable to correlate anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, fracture dislocation, joint narrowing, subchondral cysts, sclerosis). Does not have knowledge of routine CT and MRI.	Demonstrates good knowledge of Ortho Radiology and orders appropriate radiographs. Able to correlate anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, fracture dislocation, joint narrowing, subchondral cysts, sclerosis) Has knowledge of routine CT and MRI
PC	Does not demonstrate basics skills for routine patient care and performance of examination of musculoskeletal system. Does not orders appropriate radiographs and blood investigations. Unable to identify abnormalities in radiographs, CT, MRI and blood investigations	Demonstrate basics skills for routine patient care and performance of examination of musculoskeletal system. Orders appropriate radiographs and blood investigations. Able to identify abnormalities in radiographs, CT, MRI and blood investigations

PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care

EPA 4: Entering and discussing orders and prescriptions and giving the necessary instructions to the patients	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to prescribe therapies or interventions beneficial to patients. Entering residents will have a comprehensive understanding of some but not necessarily all of the patient's clinical problems for which they must provide orders. They must also recognize their limitations and seek review for any orders and prescriptions they are expected to provide but for which they do not understand the rationale. The expectation is that learners will be able to enter safe orders and prescriptions in a variety of settings (e.g., inpatient, ambulatory, urgent, or emergent care).
2. Most relevant domains of competence:	MK, PC, IPC, PBLI, P
3. Competencies within each domain critical to entrustment decisions:	MK9.2, PC9.2, IPC1.2, SBP1.2, PBLI1.2, P1.2
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every 6 months) 2. Workplace assessment by Faculty 3. Multisource feedback <ol style="list-style-type: none"> a. Patient, b. Nurses, c. Health care workers, d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not has knowledge in Pharmacology of drugs commonly used. Does not have good knowledge of specific drug used in Orthopaedics	Has knowledge in Pharmacology of drugs commonly used. Has good knowledge of specific drug used in Orthopaedics
PC	Un capable of prescribing general medication. Does not prescribes analgesics like NSAIDs and other drugs specific for Orthopaedic conditions. Does not have knowledge of complications related to the drugs	Prescribes general medication. Prescribes analgesics like NSAIDs and other drugs specific for Orthopaedic conditions. Prescribes antibiotics and identifies complications related to the drugs
PBLI	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team
SBP	Does not has knowledge in Pharmacology of drugs commonly used. Does not have good knowledge of specific drug used in Orthopaedics	Has knowledge in Pharmacology of drugs commonly used. Has good knowledge of specific drug used in Orthopaedics
PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external
PBLI	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team assistance. Does not continually assesses performance by evaluating feedback and assessments	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team assistance. Continually assesses performance by evaluating feedback and assessments

P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
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EPA 5: Documenting a clinical encounter in patient records	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to provide accurate, focused, and context-specific documentation of a clinical encounter in either written or electronic formats. Performance of this EPA is predicated on the ability to obtain information through history, using both primary and secondary sources, and physical exam in a variety of settings (e.g., office visit, admission, discharge summary, telephone call, email).
2. Most relevant domains of competence:	MK, PC, IPC, SBP, P
3. Competencies within each domain critical to entrustment decisions:	MK 4.2, PC 4.2, IPC 1.2, SBP 1.2, P 1.2
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every 6 months) 2. Workplace assessment by Faculty 3. Multisource feedback <ol style="list-style-type: none"> a. Patient, b. Nurses, c. Health care workers, d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not demonstrates advance knowledge of diagnosis of patients. Does not have knowledge of different patients and their comorbid conditions, drug history and ADR.	Demonstrates advance knowledge of diagnosis of patients. Demonstrates advance knowledge of different patients and their comorbid conditions, drug history and ADR.
PC	Not capable of obtaining an accurate history from the patient and documentation. Does not perform relevant clinical examination and documentations. Unable to diagnose the Orthopaedic diseases and injury and does not documents it. Not capable of obtaining informed consent for procedures and surgeries.	Obtains an accurate history from the patient and documentation. Performs relevant clinical examination and documentations. Able to diagnose the Orthopaedic diseases and injury and documents. Capable of obtaining informed consent for procedures and surgeries.
IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care

EPA 6: Provide an oral presentation of a clinical encounter	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to concisely present a summary of a clinical encounter to one or more members of the health care team (including patients and families) in order to achieve a shared understanding of the patient's current condition. A prerequisite for the ability to provide an oral presentation is synthesis of the information, gathered into an accurate assessment of the patient's current condition.
2. Most relevant domains of competence:	MK, PC,IPC, PBLI, P.
3. Competencies within each domain critical to entrustment decisions:	MK 6.2, PC 6.2, IPC 1.2, PBLI 1.2, P1.2
4.Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every 6 months) 2. Workplace assessment by Faculty 3. Multisource feedback <ol style="list-style-type: none"> a. Patient, b. Nurses, c. Health care workers, d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not understands the basic pathophysiology of the multiply injured patient. Does not demonstrates knowledge of basic surgical approaches and interprets basic imaging studies. Unable to recognizes common complications and understand the spectrum of instability of the multiply injured patients. Does not have knowledge of DCO and ETC.	Understands the basic pathophysiology of the multiply injured patient. Demonstrates knowledge of basic surgical approaches and interprets basic imaging studies. Recognizes common complications and understand the spectrum of instability of the multiply injured patients. Has knowledge of DCO and ETC.
PC	Un capable of assessing trauma patients. Does not identify unstable patients and the need for multispeciality involvement. Does not have knowledge to optimize host status and to creates basic pre- operative plan.	Assesses trauma patients. Identifies unstable patients and the need for multispeciality involvement. Implements strategies to optimize host status creates basic pre-operative plan. He is capable doing damage control orthopaedic procedures
IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team

SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care

EPA 7: Recognize a patient requiring urgent or emergency care and initiate evaluation and management	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to promptly recognize a patient who requires urgent or emergent care, initiate evaluation and management, and seek help is essential. New residents in particular are often among the first responders in an acute care setting, or the first to receive notification of an abnormal lab or deterioration in a patient's status. Early recognition and intervention provides the greatest chance for optimal outcomes in patient care. This EPA often calls for simultaneously recognizing need and initiating a call for assistance.
2. Most relevant domains of competence:	MK, PC,IPC, PBLI, P.
3. Competencies within each domain critical to entrustment decisions:	MK 6.3, PC 6.2, IPC1.2, P 1.2
4.Methods of assessment	1. Written exam (Every 6 months) 2. Workplace assessment by Faculty 3. Multisource feedback a. Patient, b. Nurses, c. Health care workers, d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not understands the basic pathophysiology of the multiply injured patient. Does not demonstrates knowledge of basic surgical approaches and interprets basic imaging studies. Unable to recognizes common complications and understand the spectrum of instability of the multiply injured patients. Does not have knowledge of DCO and ETC.	Understands the basic pathophysiology of the multiply injured patient. Demonstrates knowledge of basic surgical approaches and interprets basic imaging studies. Recognizes common complications and understand the spectrum of instability of the multiply injured patients. Has knowledge of DCO and ETC.
PC	Un capable of assessing trauma patients. Does not identify unstable patients and the need for multispeciality involvement. Does not have knowledge to optimize host status and to creates basic pre-operative plan.	Assesses trauma patients. Identifies unstable patients and the need for multispeciality involvement. Implements strategies to optimize host status creates basic pre-operative plan. He is capable doing damage control orthopaedic procedures.

IPC	<p>Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team</p> <p>Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care</p>	<p>Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team</p> <p>Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value.</p> <p>Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care</p>
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EPA 8: Give or receive a patient handover to transition care responsibility	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Effective and efficient handover communication is critical for patient care. Handover communication ensures that patients continue to receive high-quality and safe care through transitions of responsibility from one health care team or practitioner to another. Handovers are also foundational to the success of many other types of interprofessional communication, including discharge from one provider to another and from one setting to another. Handovers may occur between settings (e.g., hospitalist to PCP; pediatric to adult caregiver; discharges to lower-acuity settings) or within settings (e.g., shift changes).
2. Most relevant domains of competence:	MK, PC, IPC, PBLI, P
3. Competencies within each domain critical to entrustment decisions:	MK 10.2, PC10.2, IPC 1.2, PBLI 1.2, P 1.2
4. Methods of assessment	<ol style="list-style-type: none"> 1. Workplace assessment by Faculty 2. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not have knowledge of fractures and orthopaedic diseases and communicates with patients. Does not have knowledge of comorbid conditions of patients and obtains specific consults for the same	Has good knowledge of fractures and orthopaedic diseases and communicates with patients. Has knowledge of comorbid conditions of patients and obtains specific consults for the same
PC	Does not give care and concern to the patients and listens to them. Does not enquire for patient and family understanding of illness and management plan. Does not communicate effectively in stressful emergent and complex situations	Gives care and concern to the patients and listens to them. Enquires for patient and family understanding of illness and management plan. Communicates effectively in stressful emergent and complex situations
IPC	Does not recognize and communicate critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognize and communicate role as a team member to patients and staff. Does not respond to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team
PBLI	Does not acknowledge gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develop a learning plan based on feedback with some external assistance. Does not continually assess performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments
P	Does not consistently demonstrate behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognize the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognize ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care

EPA 9: Obtain informed consent for tests and/or procedures	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to perform patient care interventions that require informed consent for interventions, tests, or procedures they order or perform (e.g., immunizations, central lines, contrast and radiation exposures, blood transfusions) but should not be expected to obtain informed consent for procedures or tests for which they do not know the indications, contraindications, alternatives, risks, and benefits.
2. Most relevant domains of competence:	MK, PC, IPC, SBP, P
3. Competencies within each domain critical to entrustment decisions:	MK 4.2, PC4.2, IPC 1.2, SBP 1.2, P 1.2
4. Methods of assessment	<ol style="list-style-type: none"> 1. Workplace assessment by Faculty 2. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not demonstrates advance knowledge of diagnosis of patients. Does not have knowledge of different patients and their comorbid conditions, drug history and ADR.	Demonstrates advance knowledge of diagnosis of patients. Demonstrates advance knowledge of different patients and their comorbid conditions, drug history and ADR.
PC	Not capable of obtaining an accurate history from the patient and documentation. Does not perform relevant clinical examination and documentations. Unable to diagnose the Orthopaedic diseases and injury and does not documents it. Not capable of obtaining informed consent for procedures and surgeries.	Obtains an accurate history from the patient and documentation. Performs relevant clinical examination and documentations. Able to diagnose the Orthopaedic diseases and injury and documents. Capable of obtaining informed consent for procedures and surgeries
IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team

PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments.
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care

EPA 10: Collaborate as a member of an interprofessional team	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Effective teamwork is necessary to achieve the Institute of Medicine competencies for care that is safe, timely, effective, efficient, and equitable. Introduction to the roles, responsibilities, and contributions of individual team members early in professional development is critical to fully embracing the value that teamwork adds to patient care outcomes.
2. Most relevant domains of competence:	MK, PC, IPC, SBP, P
3. Competencies within each domain critical to entrustment decisions:	IPC 1.2, SBP 1.2, P 1.2
4. Methods of assessment	<ol style="list-style-type: none"> 1. Workplace assessment by Faculty 2. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care

EPA 11: Form clinical questions and retrieve evidence to advance patient care	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to identify key clinical questions in caring for patients, identify information resources, and retrieve information and evidence that will be used to address those questions. Residents should have basic skill in critiquing the quality of the evidence and assessing applicability to their patients and the clinical context. Underlying the skill set of practicing evidence-based medicine is the foundational knowledge an individual has and the self-awareness to identify gaps and fill them.
2. Most relevant domains of competence:	MK, PBLI.
3. Competencies within each domain critical to entrustment decisions:	MK 4.2, PBLI 1.2
4. Methods of assessment	<ol style="list-style-type: none"> 1. Workplace assessment by Faculty 2. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
IPC	Does not demonstrate advance knowledge of diagnosis of patients. Does not have knowledge of different patients and their comorbid conditions, drug history and ADR.	Demonstrates advance knowledge of diagnosis of patients. Demonstrates advance knowledge of different patients and their comorbid conditions, drug history and ADR.
PBLI	Does not acknowledge gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develop a learning plan based on feedback with some external assistance. Does not continually assess performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments

EPA 12: Orthopaedic & Radiology and related investigations	
5. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should demonstrate knowledge of Ortho Radiology, Orthopaedic Anatomy and Orthopaedics related investigations. He should be able to order appropriate radiographs and blood investigations and be able to interrupt routine Radiographs, CT, MRI and other investigations
6. Most relevant domains of competence:	MK, PC, P, IPC, SBP, PBLI
7. Competencies within each domain critical to entrustment decisions:	MK1.3, PC1.3, P1.3, IPC1.3, SBP1.3, PBLI1.3
8. Methods of assessment	<ol style="list-style-type: none"> 1. Periodic written exam (Every month) 2. Mini clinical exams 3. Work place assessment 4. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
IPC	Does not have good knowledge of Ortho Radiology and does not order appropriate radiographs. Unable to correlate anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, fracture dislocation, joint narrowing, subchondral cysts, sclerosis). Does not have knowledge of routine CT and MRI.	Demonstrates good knowledge of Ortho Radiology and orders appropriate radiographs. Able to correlate anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, fracture dislocation, joint narrowing, subchondral cysts, sclerosis) Has knowledge of routine CT and MRI.
PC	Does not demonstrate basic skills for routine patient care and performance of examination of musculoskeletal system. Does not order appropriate radiographs and blood investigations. Unable to identify abnormalities in radiographs, CT, MRI and blood investigations	Demonstrate basic skills for routine patient care and performance of examination of musculoskeletal system. Orders appropriate radiographs and blood investigations. Able to identify abnormalities in radiographs, CT, MRI and blood investigations
SBP	Does not describe basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrate an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system

PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments
PC	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team

EPA 13: Splints and tractions	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to splint fractures and apply different tractions as appropriate for the Orthopaedic conditions. He should be capable of treating fractures non operatively as appropriate.
2. Most relevant domains of competence:	MK, PC, P, IPC, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK2.3, PC2.3, P1.3, SBP1.3, PBLI 1.3
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every month) 2. Workplace assessment by Faculty 3. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not has knowledge of Splints and traction in Orthopaedics. Does not demonstrate Knowledge of injury and the need of appropriate splints and tractions. Unable to demonstrate basic knowledge of mechanism of injury and appropriate splinting and traction based on that injury. Not having knowledge of prosthetic and orthotics.	Has limited knowledge of Splints and traction in Orthopaedics. Demonstrate Knowledge of injury and the need of appropriate splints and tractions. Demonstrates basic knowledge of mechanism of injury and appropriate splinting and traction based on that injury. Demonstrates knowledge of prosthetic and orthotics.
PC	Does not demonstrates basic skills in assessing splints and tractions. Unable to provide basic splints and tractions even with limited supervision. Not able to provide appropriate orthosis and prosthesis.	Demonstrates basic skills in assessing splints and tractions. Able to provide basic splints and tractions with limited supervision. Able to provide appropriate orthosis and prosthesis.
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team
PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments

P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
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EPA 14: Wound care	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to give appropriate wound care for Trauma and Post operative patients. He should be able to identify wound complications and initiate care for the same.
2. Most relevant domains of competence:	MK, PC, P, IPC, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK3.3, PC3.3, P1.3, IPC1.3, SBP1.3, PBLI1.3
4. Methods of assessment	<ol style="list-style-type: none"> 1. Workplace assessment by Faculty 2. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not has knowledge of Anatomy and Physiology of wound healing. Does not demonstrate knowledge of regional gross anatomy and phases of inflammation and healing. Does not demonstrate knowledge of microanatomy and cellular anatomy.	Has knowledge of Anatomy and Physiology of wound healing. Demonstrate knowledge of regional gross anatomy and phases of inflammation and healing. Demonstrate knowledge of microanatomy and cellular anatomy
PC	Does not demonstrates basic skills of sterile dressings. Unable to do appropriate wound care even without supervision and not capable of identifying complications.	Demonstrates basic skills of sterile dressings. Able to do appropriate wound care without supervision and identify complications.

P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments

EPA 15: Medical documentation	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to document proper history, clinical examination, obtain proper consent for procedure and surgeries. He also documents every day progress notes, compliance of the patients etc.
2. Most relevant domains of competence:	MK, PC, P, IPC, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK4.3, PC4.3, P1.3, IPC1.3, SBP1.3, PBLI1.3
4. Methods of assessment	<ol style="list-style-type: none"> 1. Workplace assessment by Faculty 2. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not demonstrate advance knowledge of diagnosis of patients. Does not have knowledge of different patients and their comorbid conditions, drug history and ADR.	Demonstrates advance knowledge of diagnosis of patients. Demonstrates advance knowledge of different patients and their comorbid conditions, drug history and ADR.
PC	Not capable of obtaining an accurate history from the patient and documentation. Does not perform relevant clinical examination and documentations. Unable to diagnose the Orthopaedic diseases and injury and does not document it. Not capable of obtaining informed consent for procedures and surgeries.	Obtains an accurate history from the patient and documentation. Performs relevant clinical examination and documentations. Able to diagnose the Orthopaedic diseases and injury and documents. Capable of obtaining informed consent for procedures and surgeries.
P	Does not consistently demonstrate behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognize the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognize ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care

IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments

EPA 16: Performing and assisting Trauma Procedures including metallurgy knowledge	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to provide accurate, focused, and context-specific documentation of a clinical encounter in either written or electronic formats. Performance of this EPA is predicated on the ability to obtain information through history, using both primary and secondary sources, and physical exam in a variety of settings (e.g., office visit, admission, discharge summary, telephone call, email).
2. Most relevant domains of competence:	MK, PC, P, IPC, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK5.3, PC 5.3, P 1.3, IPC 1.3, SBP 1.3, PBLI 1.3
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every month) 2. Mini Clinical exams 3. Workplace assessment by Faculty 4. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not demonstrates knowledge of basic anatomy and pathophysiology of injured patients. Does not knows fractures and soft tissue classifications. Does not understands and interprets basic imaging studies. Does not understands sources of bleeding and doesn't look associated injury patterns	Demonstrates knowledge of basic anatomy and pathophysiology of injured patients. Knows fractures and soft tissue classifications. Understands and interprets basic imaging studies. Understands sources of bleeding. List associated injury patterns.
PC	Does not obtains an accurate history and physical examination. Identifies an unstable patient. Doesn't orders appropriate imaging studies. Does not appropriately assesses soft tissue status. Doesn't provide appropriate splints and plaster for fractures. Reduces simple fractures. Doesn't plan for treatment of fracture. Does not Recognizes soft tissue conditions that require urgent treatment. He is not able to perform simple wound debridement, K wire fixation, external fixator application of fractures with supervision, open /closed reduction and internal fixation of fractures. (Plate osteosynthesis& IMIL)	Obtains an accurate history and physical examination. Identifies an unstable patient. Orders appropriate imaging studies. Appropriately assesses soft tissue status. Provide appropriate splints and plaster for fractures. Reduces simple fractures. Formulates basic plan for treatment of fractures. Identifies the need for multi-speciality involvement. Recognizes soft tissue conditions that require urgent treatment. Performs simple wound debridement, K wire fixation, external fixator application of fractures, open / closed reduction and internal fixation of fractures. (Plate osteosynthesis& IMIL)
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care

IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments

EPA 17: Triaging and resuscitation in Orthopaedic emergencies and referrals (Inter & Intra Department)	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to triage a trauma patient and act appropriately. He should be able to resuscitate a multiple injured patient and make appropriate referrals. He should be able to do Damage control orthopaedic procedures.
2. Most relevant domains of competence:	MK, PC, P, IPC, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK6.3, PC6.3, P1.3, IPC1.3, SBP1.3, PBLI1.3
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every month) 2. Workplace assessment by Faculty 3. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not understands the basic pathophysiology of the multiply injured patient. Does not demonstrates knowledge of basic surgical approaches and interprets basic imaging studies. Unable to recognizes common complications and understand the spectrum of instability of the multiply injured patients. Does not have knowledge of DCO and ETC.	Understands the basic pathophysiology of the multiply injured patient. Demonstrates knowledge of basic surgical approaches and interprets basic imaging studies. Recognizes common complications and understand the spectrum of instability of the multiply injured patients. Has knowledge of DCO and ETC.
PC	Un capable of assessing trauma patients. Does not identify unstable patients and the need for multispeciality involvement. Does not have knowledge to optimize host status and to creates basic pre-operative plan.	Assesses trauma patients. Identifies unstable patients and the need for multispeciality involvement. Implements strategies to optimize host status creates basic pre-operative plan. He is capable doing damage control orthopaedic procedures.
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team

SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments

EPA 18: Sub speciality surgeries	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to recognize and evaluate all Orthopaedic sub speciality patient including Spinal disorders, Sports related injuries and joint diseases and reconstruction.
2. Most relevant domains of competence:	MK, PC, P, IPC, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK7.3, PC7.3, P1.3, IPC1.3, SBP1.3, PBLI1.3
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every month) 2. Mini Clinical exams 3. Workplace assessment by Faculty 4. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not demonstrates knowledge of pathophysiology related to Orthopaedic sports medicine, Spinal disorders, inflammatory diseases and degenerative joint diseases. Doesn't correlates anatomic knowledge to imaging findings on basic imaging studies. Does not have knowledge of ligaments injury, Spinal diseases and natural history of arthritic condition of joints	Demonstrates knowledge of pathophysiology related to Orthopaedic sports medicine, Spinal disorders, inflammatory diseases and degenerative joint diseases. Correlates anatomic knowledge to imaging findings on basic imaging studies. Demonstrates knowledge of ligaments injury, Spinal diseases and natural history of arthritic condition of joints.

PC	Does not obtains history and performs basic physical examination of Spine and joints. Does not appropriately orders basic imaging studies. Unable to prescribe non-operative treatments. Does not interprets basic imaging studies. Does not provides basic per operative management. He is not able to perform diagnostic knee arthroscopy and hemiarthroplasty.	Obtains history and performs basic physical examinati on of Spine and joints. Appropriately orders basic imaging studies. Prescribes non-operative treatments. Appropriately interprets basic imaging studies. Provides basic per operative management. Able to perform diagnostic knee arthroscopy, hemi arthroplasty and spine exposure.
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
IPC	Does not recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Does not recognizes and communicates role as a team member to patients and staff. Does not responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team	Recognizes and communicates critical patient information in a timely and accurate manner to other members of the treatment team. Recognizes and communicates role as a team member to patients and staff. Responds to requests for information Examples: Lab results, accurate and timely progress notes, answers pages in a timely manner. Supports and respects decisions made by team
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system

PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments
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EPA 19: Orthopaedic diseases and Rehabilitation	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Resident should be able to diagnose common Orthopaedic diseases including bone and joint infections, Tumours, Congenital abnormalities and other diseases related to Orthopaedics. He can give rehabilitation appropriate to diseases.
2. Most relevant domains of competence:	MK, PC,P, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK8.3, PC 8.3,P 1.3, SBP 1.3, PBLI 1.3
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every month) 2. Mini clinical exams 3. Workplace assessment by Faculty 4. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not demonstrates knowledge of pathophysiology related to Orthopaedic disease like bone and joint infection and tumours. Does not demonstrate knowledge of normal development of musculoskeletal system. Does not have basic knowledge of natural history of Orthopaedics diseases (e.g. Tumours, infections, arthritis, congenital anomalies, metabolic and other miscellaneous conditions). Does not correlates anatomic knowledge to imaging findings on basic imaging studies (e.g., osteophyte formation, joint narrowing, subchondral cysts, sclerosis, tumour conditions). Does not demonstrates knowledge of patho anatomy and basic surgical approaches.	Demonstrates knowledge of pathophysiology related to Orthopaedic disease like bone and joint infection and tumours. Demonstrates knowledge of normal development of musculoskeletal system. Demonstrates basic knowledge of natural history of Orthopaedics diseases (e.g. Tumours, infections, arthritis, congenital anomalies, metabolic and other miscellaneous conditions). Correlates anatomic knowledge to imaging findings on asic imaging studies (e.g., osteophyte formation, joint narrowing, subchondral cysts, sclerosis, tumour conditions). Demonstrates knowledge of patho anatomy and basic surgical approaches.

PC	Does not appropriately orders basic imaging studies. Unable to prescribe non-operative treatments. Provides basic per operative management. Lists potential complications of the orthopaedic disease. Does not obtain focused history and perform proper examination. Does not appropriately interprets basic imaging studies. Not able to perform incision & drainage, arthrotomy of joints, biopsy and give intra-articular injections.	Appropriately orders basic imaging studies. Prescribes non-operative treatments. Provides basic per operative management. Lists potential complications of the orthopaedic disease. Obtains focused history and performs focused examination and gait analysis. Appropriately interprets basic imaging studies. Able to perform incision & drainage, arthrotomy of joints, biopsy and give intra-articular injections.
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments

EPA 20: Prescription and medications in Orthopaedics	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should have knowledge of all drugs used in general and specific for Orthopaedics.
2. Most relevant domains of competence:	MK, PC, P, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK9.3, PC 9.3, P 1.3, SBP 1.3, PBLI 1.3
4. Methods of assessment	1. Workplace assessment by Faculty 2. Multisource feedback <ol style="list-style-type: none"> Patient Nurses Health care workers Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not has knowledge in Pharmacology of drugs commonly used. Does not have good knowledge of specific drug used in Orthopaedics	Has knowledge in Pharmacology of drugs commonly used. Has good knowledge of specific drug used in Orthopaedics
PC	Un capable of prescribing general edication. Does not prescribes analgesics like NSAIDs and other drugs specific for Orthopaedic conditions. Does not have knowledge of complications related to the drugs	Prescribes general medication. Prescribes analgesics like NSAIDs and other drugs specific for Orthopaedic conditions. Prescribes antibiotics and identifies complications related to the drugs
P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system

PBLI	Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments
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EPA 21: Communication skills	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Resident has the capability to communicate within the department intra departmental and with stake holders of health system. He can communicate with the patient and relatives in a professional way.
2. Most relevant domains of competence:	MK, PC,P, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK 10.3, PC10.3,P 1.3, SBP 1.3, PBLI 1.3
4. Methods of assessment	1. Workplace assessment by Faculty 2. Multisource feedback a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not have knowledge of fractures and orthopaedic diseases and communicates with patients. Does not have knowledge of comorbid conditions of patients and obtains specific consults for the same	Has good knowledge of fractures and orthopaedic diseases and communicates with patients. Has knowledge of comorbid conditions of patients and obtains specific consults for the same
PC	Does not give care and concern to the patients and listens to them. Does not enquire for patient and family understanding of illness and management plan. Does not communicates effectively in stressful emergent and complex situations	Gives care and concern to the patients and listens to them. Enquire for patient and family understanding of illness and management plan. Communicates effectively in stressful emergent and complex situations

P	Does not consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Does not recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Does not recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care	Consistently demonstrates behaviour that conveys caring, honesty, and genuine interest in patients and families. Recognizes the importance and priority of patient care, with an emphasis on the care that the patient wants and needs; demonstrates a commitment to this value. Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common and frequent clinical situations including socioeconomic variances in patient care
SBP	Does not describes basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrates an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system Does not acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develops a learning plan based on feedback with some external assistance. Does not continually assesses performance by evaluating feedback and assessments	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments

EPA 22: Research and literature	
1. Description of the activity: This included a brief rationale and a list of the functions required for the EPA.	Residents should be able to do appropriate research in the form of dissertation and should have sound knowledge of the same up to date. He should be capable of performing literature search and guide in the recent advances of treatment of Orthopaedic diseases and Trauma.
2. Most relevant domains of competence:	MK, SBP, PBLI
3. Competencies within each domain critical to entrustment decisions:	MK 11.3, SBP 1.3, PBLI 1.3
4. Methods of assessment	<ol style="list-style-type: none"> 1. Written exam (Every 6 months) 2. Workplace assessment by Faculty 3. Multisource feedback <ol style="list-style-type: none"> a. Patient b. Nurses c. Health care workers d. Peers

Competency	Pre-Entrustable	Entrustable
MK	Does not have basic knowledge of search of literature related to Orthopaedics. Does not have knowledge of literature search.	Has good knowledge of search of literature related to Orthopaedics. Demonstrates knowledge of advanced literature and search for specific Orthopaedic conditions
SBP	Does not describe basic levels of systems of care for orthopaedic diseases and trauma. Does not demonstrate an ability to give examples of cost containment and value implications of patient care. Does not understand the economic challenges of patient care within the health system	Describes basic levels of systems of care for orthopaedic diseases and trauma. Demonstrates an ability to give examples of cost containment and value implications of patient care. Understand the economic challenges of patient care within the health system
PBLI	Does not acknowledge gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Does not develop a learning plan based on feedback with some external assistance. Does not continually assess performance by evaluating feedback and assessments	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback from teachers and colleagues. Develops a learning plan based on feedback with some external assistance. Continually assesses performance by evaluating feedback and assessments

9.1.2 Table 5.Mapping of PO,CO, EPA, Competency and Sub-competency with level

S.No	EPA	PO	Domains and levels of competency
1	Gathering a history and performing physical examination	PO 1, 3, 4, 6, 7 & 8	MK 6.2, MK 7.2 & 8.2, PC 6.1, 7.1 & 8.1, IPC 1.2, P1.2
2	Prioritizing a differential diagnosis following a clinical encounter	PO 1, 3, 4, 6, 7 & 8	MK 6.2,7.2 & 8.2, PC 6.1, 7.1 & 8.2, IPC 1.2, PBLI 1.1, P1.1
3	Recommending and interpreting common diagnostic and screening tests	PO 1 - 4	MK 1.2, PC 1.2, PBLI 1.2 , P 1.2
4	Entering and discussing orders and prescriptions and giving the necessary instructions to the patients	PO 2,3,6 & 7	MK 9.2, PC 9.2, IPC 1.2, SBP 1.2, PBLI 1.2, P 1.2
5	Documenting a clinical encounter in patient records	PO 5 & 7	MK 4.2, PC 4.2, IPC 1.2, SBP 1.2, P 1.2
6	Provide an oral presentation of a clinical encounter	PO 1,6&7	MK 6.2, PC 6.2, IPC 1.2, PBLI 1.2, P1.2
7	Recognize a patient requiring urgent or emergency care and initiate evaluation and management	PO 1,6&7	MK 6.3, PC 6.2, IPC 1.2, P 1.2
8	Give or receive a patient handover to transition care responsibility	PO 7	MK 10.2, PC 10.2, IPC 1.2, PBLI 1.2, P 1.2
9	Obtain informed consent for tests and/or procedures	PO 5 & 7	MK 4.2, PC4.2, IPC 1.2, SBP 1.2, P 1.2
10	Collaborate as a member of an interprofessional team	PO 7	IPC 1.2, SBP 1.2, P 1.2
11	Form clinical questions and retrieve evidence to advance patient care	PO 5 & 7	MK 4.2, PBLI 1.2
12	Orthopaedic& Radiology and related investigations	PO 1 - 4	MK 1.3, PC 1.3, P 1.3, IPC 1.3, SBP 1.3, PBLI 1.3
13	Splints and tractions	PO 1 - 4	MK 2.3, PC 2.3, P 1.3, SBP 1.3, PBLI 1.3
14	Wound care	PO 1 - 4	MK 3.3, PC 3.3, P 1.3, IPC 1.3, SBP 1.3, PBLI 1.3
15	Medical documentation	PO 5 & 7	MK 4.3, PC 4.3, P 1.3, IPC 1.3, SBP 1.3, PBLI 1.3
16	Performing and assisting Trauma Procedures including metallurgy knowledge	PO 1,2,5&6	MK 5.3, PC 5.3, P 1.3, IPC 1.3, SBP 1.3, PBLI 1.3
17	Triaging and resuscitation in Orthopaedic emergencies and referrals (Inter & Intra Department)	PO 1,6&7	MK 6.3, PC 6.3, P 1.3, IPC 1.3, SBP 1.3, PBLI 1.3
18	Sub speciality surgeries	PO 4,6,7&8	MK 7.3, PC 7.3, P 1.3, IPC 1.3, SBP 1.3, PBLI 1.3
19	Orthopaedic diseases and Rehabilitation	PO 3,7& 8	MK 8.3, PC 8.3, P 1.3, SBP 1.3, PBLI 1.3

20	Prescription and medications in Orthopaedics	PO 2,3,6 & 7	MK 9.3, PC 9.3, P 1.3, SBP 1.3, PBLI 1.3
21	Communication skills	PO 7	MK 10.3, PC 10.3, P 1.3, SBP 1.3, PBLI 1.3
22	Research and literature	PO 8	MK 11.3, SBP 1.3, PBLI 1.3

- The Internal Assessment should be conducted in theory and clinical examination every 6 months
- Quarterly assessment during the MS training should be based on following educational activities:
 1. Journal based / recent advances learning
 2. Patient based / Laboratory or Skill based learning
 3. Self directed learning and teaching
 4. Departmental and interdepartmental learning activity
 5. External and Outreach Activities / CMEs The student to be assessed periodically as per categories listed in postgraduate student appraisal form (Annexure-2).

9.2 Summative Assessment:

Eligibility for appearing in the final university exam

- Attendance : 80 % in each year
- One poster presentation in International/National/ State level conference.
- One oral presentation International/National/ State level conference.
- Submission of one scientific paper for publication to an indexed journal

9.2.1 Postgraduate Examination shall be in three parts:

1. Thesis

Every post graduate student shall carry out work on an assigned research project under the guidance of a recognised Post Graduate Teacher, the result of which shall be written up and submitted in the form of a Thesis. Work for writing the Thesis is aimed at contributing to the development of a spirit of enquiry, besides exposing the post graduate student to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature. Thesis should be submitted at least six months before the Theory and Clinical / Practical examination and will be evaluated by two external. A post graduate student will be allowed to appear for the Theory and Practical/Clinical examination only after the acceptance of the Thesis by the examiners.

2. Theory Examination:

There should be four theory papers, as given below:

Paper I : Basic Sciences as applied to Orthopaedics

Paper II : Traumatology and Rehabilitation

Paper III : Orthopaedic diseases

Paper IV : Recent advances and subspecialty in Orthopaedic surgery

Each theory paper will be of 100 marks i.e. 4 papers – 100 marks each (Total 400). Each paper will have 10 short essay answer questions of 10 marks each.

3. Clinical ,Oral/viva voce Examination including Dissertation and Spotters: shall be as given below:

Each students will be evaluated with all the components of clinical and viva-voce

1. Practical/Clinical: The practical examination should consist of the following and should be spread over two days, if the number of post graduate students appearing is more than five.
 1. One long case: History taking, physical examination, interpretation of clinical findings, differential diagnosis, investigations, prognosis and management.(1 X 80= 80)
 2. Short cases from various sections of the speciality(three)(3 X 40 = 120)
2. Oral/Viva-voce Examination
 - Surgical Anatomy including Osteology& Pathology (25 marks)
 - Instruments(25 marks)
 - Radiology(25 marks)
 - Orthotics and prosthetics(25 marks)

Pass criteria:The examination MS shall be held at the end of 3rd academic year. There will be four evaluation for each theory paper. The examinations shall be organised on the basis of 'Marking system' to evaluate and to certify post graduate student's level of knowledge, skill and competence at the end of the training. Obtaining a minimum of 50% marks in 'Theory' as well as 'Practical' separately shall be mandatory for passing examination as a whole. Student must secure minimum of 40% in each paper and in aggregate 50% overall as far as theory is concerned.

10. Blue print of Weightage of the Systems

Paper I: Applied Basics Science

Sl. No	Discipline	Topics	Weightage	Marks Allotted	No. of Question
1	Anatomy	Musculoskeletal Anatomy	20%	20	2
2	Biochemistry	Metabolic disorders	10%	10	1
3	Physiology	Muscle, bone, Neurovascular system	10%	10	1
4	Pharmacology	Drug usage in general comorbid conditions and Orthopaedic specific	20%	20	2
5	Microbiology	Culture and gram stain of pyogenic Tuberculosis infection and sterilisation methods	10%	10	1
6	Pathology	Benign Premalignant and malignant Orthopaedic disorder.	20%	20	2
7	Miscellaneous (radio logy / an-aesthesia / general principles).	Radiology related to Orthopaedics. Anaesthesia related to Orthopaedics	10%	10	1

M.S ORTHOPAEDICS MODEL PAPER 1 – BASIC SCIENCES

- Answer all questions.
- Draw diagrams wherever necessary.

Time – 3 hours

10x10= 100 marks

- Q1. Discuss the blood supply of the femoral head and its importance in healing of fracture neck of femur
- Q2. Describe the anatomy of brachial plexus and discuss about Erb's palsy.
- Q3. Write a note on Metabolism of vitamin D. Describe the causes and clinical features, of Hypervitaminosis
- Q4. Write a note on Neurogenic bladder.
- Q5. Discuss the various types of biopsies and their value in orthopaedic practice.
- Q6. Write about the Classification of bone tumours.
- Q7. Enumerate the Disease modifying drugs in rheumatic arthritis Elaborate on 4 drugs.
- Q8. Write briefly about the Chemotherapy of bone and joint tuberculosis.
- Q9. Write about ETO sterilization in Orthopaedics.
- Q10. Describe Radioactive isotopes and its clinical application.

Paper II: Traumatology and Rehabilitation

Sl. No	Discipline	Topics	Weightage	Marks Allotted	No.of Question
1	General principles and miscellaneous	Triaging, Assessing Polytrauma, Multiple injured patients and splints	20%	20	2
2	Upper Limb	Fractures Clavicle, Shoulder, Humerus, Elbow, Forearm, Wrist, hand and dislocations	20%	20	2
3	Lower Limb	Fractures of Femur, Knee, Tibia, Ankle, Foot and dislocations	20%	20	2
4	Pelvis, acetabulum and hip	Fractures of Pelvis, acetabulum, hip and hip dislocations	20%	20	2
5	Spine	Fractures and dislocations of Spine	20%	20	2

M.S ORTHOPAEDICS

MODEL PAPER 2 - TRAUMATOLOGY

- Answer all questions.
- Draw diagrams wherever necessary.

Time – 3 hours
10x10= 100 marks

- Q1. Describe about Diaphyseal Malunion of fracture of long bones and their management.
- Q2. Classify epiphyseal injuries and their management.
- Q3. Describe the classification, Clinical features, management and its complications of proximal humerus fracture in elderly.
- Q4. Describe carpal instability types and its management.
- Q5. Write a note Classifications, clinical features and management of tibialphilon Fracture.
- Q6. Describe the Classification, Clinical features and management of Peri-prosthetic fracture following Total Hip Replacement.
- Q7. Classify Femoral head fractures, describe the Clinical features and management of neglected fracture of femoral head.
- Q8. Classify acetabular fractures and discuss the principles of management.
- Q9. Classify dorsolumbar spinal injuries, their complications and management.
- Q10. Describe Odontoid Fractures, its Mechanism of injury, radiological features and management.

PaperIII: Orthopaedic Diseases

Sl. No	Discipline	Topics	Weightage	Marks Allotted	No.of Question
1	Infections	Pyogenic and Tuberculosis and non specific infections of musculoskeletal system	20%	20	2
2	Congenital and developmental disorders	Paediatric Orthopaedics related to Congenital and developmental disorders	10%	10	1
3	Metabolic disorders	Metabolic disorders related to musculoskeletal system	10%	10	1
4	Tumours	Tumours related to musculoskeletal system	20%	20	2
5	Degenerative and autoimmune disorders	Degenerative and autoimmune disorders related to musculoskeletal system	10%	10	1
6	Spine and Neurological disorders	Spine and Neurological disorders	10%	10	1
7	Prosthetics and orthotics	Prosthetics and orthotics	10%	10	1
8	Missellaneous	Missellaneous topics related to musculoskeletal system	10%	10	1

- N.B: 1. Not more than 2 Questions from a single region.
2. Entire Musculo Skeletal system should be covered giving importance to all regions.

**M.S ORTHOPAEDICS MODEL PAPER 3 – PRINCIPLES AND PRACTICE OF
ORTHOPAEDICS (ORTHOPAEDIC DISEASES)**

- Answer all questions.
- Draw diagrams wherever necessary.

**Time – 3 hours
10x10= 100 marks**

- Q1. Write briefly about Tom smith arthritis of the hip.
- Q2. What are the Atypical manifestation of skeletal tuberculosis
- Q3. Write about Patho anatomy and radiological features of Developmental Dysplasia of the Hip.
- Q4. Write a note on Renal rickets.
- Q5. Write a note on Synovial sarcoma.
- Q6. Enumerate Giant Cell Tumour variants, Discuss the Clinical features and management of Giant Cell Tumour in distal femur.
- Q7. Describe the types, clinical features and management of loose bodies of the knee joint.
- Q8. Describe about Cauda eqina syndrome, its causes, clinical features and management.
- Q9. SACH foot. Q10. Describe the Surgical management of Perthes disease.

Paper IV: Recent Advances & Subspecialty In Orthopaedics

Sl. No	Discipline	Topics	Weightage	Marks Allotted	No. of Question
1	Arthroplasty	Joints reconstruction shoulder, Elbow, Wrist, Hip, Knee & Ankle	20%	20	2
2	Arthroscopy	Shoulder, Elbow, Wrist, Hip, Knee & Ankle	20%	20	2
3	Spine	Recent advances like vertebroplasty, MISS and endoscopy	10%	10	1
4	Trauma	Recent advances in Trauma including metallurgy	10%	10	1
5	Tumours	Recent advances in tumour related to Chemotherapy and Endoprosthesis	10%	10	1
6	General principles and miscellaneous	Recent advances e.g. imaging, implants sterilisation, operating room etc.	30%	30	3

N.B: 1. Not more than 2 Questions from a single region.

2. Entire Musculo Skeletal system should be covered giving importance to all regions.

M.S ORTHOPAEDICS
MODEL PAPER 4 - RECENT ADVANCES IN ORTHOPAEDICS

- Answer all questions.
- Draw diagrams wherever necessary.

Time – 3 hours
10x10= 100 marks

- Q1. Describe aseptic loosening following Total Hip Replacement and mention about its management.
- Q2. Explain Patient specific prosthesis in Total Knee replacement.
- Q3. Write about recent advances in cellular therapy. Add a note on its clinical application in tendinopathies.
- Q4. Enumerate and explain the various fixation devices in ligament reconstruction.
- Q5. Describe the uses of cage in spinal disease and trauma.
- Q6. Write briefly about Damage control surgery in orthopaedics.
- Q7. Write a note on Navigation surgery in Orthopaedics.
- Q8. Explain Tumorembolisation.
- Q9. Write briefly about the recent advances in the management of osteoporosis.
- Q10. Describe Custom made prosthesis in limb salvage surgeries.

11. Recommended Reading (Books Recent Edition)

1. Campbell's Operative Orthopaedics, Vols 1,2,3 &4
2. Mercer's Orthopaedic Surgery
3. Rockwood And Greens – Fractures In Adults, Vol 1&2
4. Fractures In Children – Rockwood &Wilkins
5. Physiological Basis Of Medical Practice – Best AndTaylor's
6. Arthroscopic Surgery Of The Knee –Johannes
7. PaediatricOrthopaedics – Tachidjian, Vol
8. Concise System Of Orthopaedics And Fractures – Graham Apley
9. Orthopaedics And Traumatology –Natarajan
10. Outline Of Fractures Adams,Hamblen
11. Textbook Of Orthopaedics And Trauma – Kulkarni, Vol1
12. B.D. Chaurasia's Human Anatomy, Vol1,Vol 2, Vol3
13. Pharmacology And Pharmacotherapeutics –Satoskar
14. Orthopaedics Anatomy And Surgical Approaches FrederickWreckling

15. The Art Of Aesthetic Plastic Surgery – John R Levis, Voll
16. Current Concepts In Orthopaedics Dr. D. K.Tareja
17. Custom Mega Prosthesis &Limb Salvage Surgery Dr.Mayilvahanan
18. Advances InOperativeOrthopaedics
19. Green's Operative Hand Surgery-Vol. 1&. 2, Green, David P; Hotchkiss, RobertN
20. Tachdjian'sPediatric Orthopaedics-Vol. 1, Vol 2, Vol 3, Herring, JohnAnthony
21. SurgicalExposuresInOrthopedics:TheAnatomicApproach, Hoppenfeld, Stanley; De Boer, Piet
22. Adams's Outline Of Orthopaedics, Hamblen, David L; Simpson, HamishR
23. Text Book Of Ilizarov Surgical Techniques Bone Correction And Lengthening, Golyakhovsky, Vladimir; Frankel, VictorH
24. Current Techniques In Total Knee Arthroplasty, Sawhney GS
25. Applied Orthopaedic Biomechanics, Dutta, Santosh;Datta,Debasis
26. Essential Orthopaedics And Trauma, Dandy, David J; Edwards, DennisJ
27. Adams'sOutlinesOfFractures;IncludingJointInjuries, Hamblen, DavidL;Simpson,AHamishRW
28. Orthopedic Physical Assessment, Magee, DavidJ
29. Turek's Textbook Of Orthopaedics Vol 1 &2,Turek's
30. Orthopaedics Surgical Approach, Miller

B: Journals

1. Journal of Orthopaedic Surgery
2. Clinical Orthopaedics and Related Research
3. Journal of Orthopaedic Trauma
4. JBJS (British & American)
5. OCNA (Orthopaedic clinics of North America)
6. Journal of American Academy of Orthopaedic surgeons (JAAS)
7. Journal of Orthopaedic Surgery and Research
8. IJO (Indian Journal of Orthopaedics)
9. All Index journals related to Orthopaedics- pub med,scopus and Cochrane data base.

SRI BALAJI VIDYAPEETH
PILLAIYARKUPPAM, PUDUCHERRY – 607 402
EVALUATION SHEET FOR POSTGRADUATE CASE PRESENTATION

Name of the Resident:

UIN No.:

Name of the Faculty:

Date:

S. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1	Logical order in presentation (History taking)			
2	Cogency of presentation			
3	Accuracy and completeness of general and local physical examination			
4	Other systemic examination			
5	Summarizes the case and analyses the appropriate differential diagnoses			
6	Whether the diagnosis follows logically from history and findings			
7	Investigations required :Completeness of list, relevant order, interpretation of investigations			
8	Management principles and details			
9	Time management			
10	Overall performance – relevant answers to questions, attitude during presentation and confidence			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
	Signature:			

SRI BALAJI VIDYAPEETH
PILLAIYARKUPPAM, PUDUCHERRY – 607 402
EVALUATION SHEET FOR POSTGRADUATE JOURNAL CLUB

(To be marked individually by each faculty)

Name of the Resident:

UIN No.:

Name of the Faculty:

Date:

S. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1	Relevance of article chosen			
2	Identifies the problem addressed in the paper			
3	Completeness of presentation			
4	Analyses and gives comments on methodology and statistics			
5	Brief summary of results			
6	Comparison of work with other published work			
7	Merits and demerits of the paper			
8	Summary and take home message			
9	Time management			
10	Overall performance – relevant answers to questions, attitude during presentation and confidence			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
	Signature:			

SRI BALAJI VIDYAPEETH
PILLAIYARKUPPAM, PUDUCHERRY – 607 402
EVALUATION SHEET FOR POSTGRADUATE SEMINAR

(To be marked individually by each faculty)

Name of the Resident:

UIN No.:

Name of the Faculty:

Date:

S. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1	Introduction of subject and its importance / Objectives			
2	Completeness of presentation			
3	Cogency of presentation			
4	Consulted all relevant literature			
5	Use of audio-visual aids			
6	Understanding of subject			
7	Summary and take home message			
8	Cites appropriate references / suggests further reading			
9	Time management			
10	Overall performance – relevant answers to questions, attitude during presentation and confidence			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
	Signature:			

SRI BALAJI VIDYAPEETH
PILLAIYARKUPPAM, PUDUCHERRY – 607 402
EVALUATION SHEET FOR POSTGRADUATE CLINICAL WORK

(To be completed by respective Unit Head)

Name of the Resident:

UIN No.:

Name of the Faculty:

Date:

S. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1	History taking and physical examination			
2	Regularity and punctuality			
3	Ability to identify patient's problems			
4	Patient management skills			
5	Procedural skills / range of clinical technical skills			
6	Self directed learning			
7	Communication skills			
8	Proper and complete documentation			
9	Relationship with peers			
10	Works constructively in the health care system			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
	Signature:			

SRI BALAJI VIDYAPEETH
PILLAIYARKUPPAM, PUDUCHERRY – 607 402
EVALUATION SHEET FOR POSTGRADUATE CLINICAL WORK

(To be completed by Nurse / Technician / Other Health Professionals)

Name of the Resident:

UIN No.:

Name of the Faculty:

Date:

S. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1	Shows a caring attitude to patients			
2	Is respectful towards patients			
3	Shows no prejudice in the care of patients			
4	Communicates effectively with patients			
5	Empathetic counseling of patient's relatives			
6	Communicates effectively with colleagues			
7	Communicates effectively with other health professionals			
8	Allows them to express their doubts or concern regarding clinical decisions			
9	Proper and complete documentation			
10	Works constructively in the health care system			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
	Signature:			

SRI BALAJI VIDYAPEETH
PILLAIYARKUPPAM, PUDUCHERRY – 607 402
EVALUATION SHEET FOR POSTGRADUATE CLINICAL WORK

(To be completed by Patient/Relative)

Name of the Resident:

UIN No.:

Name of the Faculty:

Date:

S. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1	Shows a caring attitude to patients			
2	Is respectful towards patients			
3	Shows no prejudice in the care of patients			
4	Communicates effectively with patients			
5	Empathetic counseling of patient's relatives			
6	Effectively counsels patients preoperatively and postoperatively			
7	Takes religious and social considerations into account when making decisions			
8	Allows patients to make an informed decision regarding management and allows them to express their doubts and concerns			
9	Takes financial situation of patient into consideration when making decisions			
10	Discusses each step of the management with the patient and relatives			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
	Signature:			

SRI BALAJI VIDYAPEETH
PILLAIYARKUPPAM, PUDUCHERRY – 607 402
EVALUATION SHEET FOR POSTGRADUATE CLINICAL WORK

(To be completed by Peer)

Name of the Resident:

UIN No.:

Name of the Faculty:

Date:

S. No.	Criteria to be assessed	Score		
		Below par (1)	At par (2)	Above par (3)
1	Shows a caring attitude to patients			
2	Is respectful towards patients			
3	Shows no prejudice in the care of patients			
4	Communicates and counsels effectively patients and patient's relatives			
5	Critically evaluates and uses patient outcomes to improve patient care			
6	Communicates effectively with colleagues			
7	Communicates effectively with other health professionals			
8	Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback			
9	Regularity and punctuality of attendance			
10	Works constructively in the health care system			
		Total score:		
	General Comments:			
	Highlights in performance (strengths)			
	Possible suggested areas for improvement (weakness)			
	Signature:			

Work Place Based Assessment (WPBA)

Sri Balaji Vidyapeeth

Department of Orthopaedics

EVALUATION SHEET FOR POSTGRADUATE (WPBA)

Name of the Resident: UIN No.:

Name of the Faculty: Date:

Designation :

No. of Mini-CEX Observed:

0	1	2	3	4	5-9	>9
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Clinical setting

OPD	IP	A&E :
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 New / Follow up:

New / Follow up:

Clinical problem: _____

Complexity of the problem: _____

No. of times patient seen by the student: _____

	Below expectation	Borderline	Meet expectation	Above expectation	Not observed
History taking skill					
Physical examination skill					
Communication skill					
Clinical judgement					
Professionalism					
Organisational efficiency					
Overall clinical care					

Anything good:	Suggestions for improvement:
Agreed upon action:	
Signature of the resident	Signature of the faculty

Annexure-1: Entrustable Professional Activities Assessment

Department Of Orthopaedics

Name of the Resident:

UNI No:

Levels of competence:

- ❖ Level I: Knowledge only; can observe
- ❖ Level II(A): Can assist properly
- ❖ Level II(B): Can do under strict supervision
- ❖ Level III: Can do under loose supervision (Entrustability decision to be made based on milestones)
- ❖ Level IV: Can do independently
- ❖ Level V: Has expertise to teach others

No	EPA	6 Months	1 year	1, 1/2 years	2 years	2, 1/2 years	3 years
1	Orthopaedic & Radiology and related investigations						
2	Splints and tractions						
3	Wound care						
4	Medical documentation						
5	Performing and assisting Trauma Procedures including metallurgy knowledge						
6	Triaging and resuscitation in Orthopaedic emergencies and referrals (Inter & Intra Department)						
7	Sub speciality surgeries						
8	Orthopaedic diseases and Rehabilitation						
9	Prescription and medications in Orthopaedics						
10	Communication skills						
11	Research and literature						

Annexure 2: Postgraduate Students Appraisal Form

Sri Balaji Vidyapeeth

Department of Orthopaedics

Postgraduate Students Appraisal Form

Name of the PG Student:

UNI No:

Period of Training FROM.....TO.....

Sr. No.	PARTICULARS	Not Satisfactory	Satisfactory	More Than Satisfactory	Remarks
1	Journal based / recent advances learning				
2	Patientbased/LaboratoryorSkillbased learning				
3	Self directed learning and teaching				
4	Departmental and interdepartmental learning activity				
5	ExternalandOutreachActivities/CMEs				
6	Thesis / Research work				
7	E-portfolio Maintenance				

Publications

Yes/ No

Remarks* _____

*REMARKS: Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.

SIGNATURE OF ASSESSEE SIGNATURE OF CONSULTANT SIGNATURE OF HOD