The Ohio State University

Department of Orthopaedics

Residency Curriculum
Global Residency Program Goals and Objectives

I. Essential Attributes. The resident must exhibit the following:
   A. Must be honest, ethical, reliable, conscientious and responsible.
   B. Must learn from their prior experiences.
   C. Must become able to appropriately react to stressful situations.
   D. Must remain free from impairment due to abuse of alcohol or illegal substances.
   E. Must be free from cognitive, physical, sensory or motor impairments, which would preclude the ability to assume individual responsibility for the provision of any aspect of anesthesiology care.

II. Acquired Character Skills. The resident must acquire the following character skills during residency training:
   A. Must communicate effectively with patients, their families, and members of the health care team.
   B. Must be committed to continuing education.
   C. Must be adaptable and flexible.
   D. Must be careful and thorough.
   E. Must keep complete and accurate anesthesia records.
   F. Must have adequate cognitive breadth and depth.
   G. Must be appropriately self-confident.

III. Knowledge. During the training period, the resident will gradually and continuously expand their level of knowledge, such that, upon completion of residency training, the resident shall have sufficient knowledge to pass the written and oral board examinations. The educational opportunities provided in the department include, but are not limited to:
   A. In-training examinations. Residents, including PGY1’s, are required to take the OITE each year they are in the residency, with no exceptions.
   B. Scientific meeting involvement. Each resident is required to present an original research project during the annual departmental research day. Residents are also encouraged, at some point during their residency, to submit a poster presentation to a national or regional orthopaedic meeting, such as the AAOS, OREF, Mid-America Orthopaedic Association, or Ohio Orthopaedic Association.
   C. Departmental education conferences. Each resident must attend all departmental lectures and conferences appropriate to their level of training. All absences must be approved by the Program Director.
   D. Journal Club. Each resident should attend departmental journal club. All absences must be approved by the Program Director.
   E. Practice management education. The resident should participate in all Introduction to the Practice of Medicine learning modules, as provided by the institution.
IV. Judgment. The resident must develop the ability to properly diagnose and understand various orthopaedic conditions, and to manage a safe and appropriate care of those conditions. The skills necessary for such performance include:

A. Proficiency in the basics of history and physical examination
B. Possession of a sound general medical and basic science background.
C. Ability to assimilate available information in order to diagnose orthopaedic conditions and develop an appropriate care plan to include pre, intra, and post-operative care, as well as non-operative care.
D. Ability to consult on the evaluation and triage of emergent orthopaedic disorders

V. Clinical Skills: The resident must develop the ability to safely and expeditiously perform necessary orthopaedic procedures in all orthopedic sub-speciality areas. The necessary skills include, but are not limited to the ability to:

A. Perform the appropriate pre-operative workup of orthopaedic patients
B. Develop an appropriate Intra-operative plan
C. Determine appropriate patient positioning/draping
D. Select appropriate anesthesia
E. Demonstrate the appropriate technical skills necessary to perform procedures in each of the orthopaedic sub-specialty area (See rotation specific goals and objectives)
F. Evaluate and determine interventions for post-operative issues that may arise

VI. Core Competencies: The resident must develop the following skills in order to become an effective orthopaedist:

A. Demonstrate professionalism in accordance with the ACGME Professionalism competency
B. Develop and maintain appropriate interpersonal skills
C. Develop effective communication skills
   1. Develop active listening skills.
   2. Provide information to patients using appropriate language.
   3. Ask questions clearly of patients and their families.
   4. Provide patients with an opportunity to provide input and questions regarding their care.
   5. Demonstrate sensitivity and responsiveness to cultural differences, including awareness of their cultural perspectives and those of the patient.
D. Maintain a professional demeanor
E. Act responsibly and with integrity
F. Maintain a commitment to ethical medical practice.
   1. Maintain patient confidentiality.
   2. Provide informed patient consent.
   3. Maintain ethical business practices
G. Demonstrate respect for patients and society.
H. Work effectively with other physicians and health care providers.
I. Establish and maintain an awareness of systems-based practice.
J. Develop and maintain an awareness of systems-based practice
   1. Develop an awareness of and responsiveness to the larger context and system of health care.
   2. Develop the skills necessary to effectively use system resources to provide care of optimal value.

VII. Overall Clinical Competence:

The resident must acquire adequate mastery of each of the six areas listed above (essential attributes, acquired character skills, knowledge, judgment, clinical skills and Professionalism) such that, upon completion of residency training, the resident may assume independent responsibility for perioperative patient care.
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Goals and Objectives - Orthopaedic Years 2 – 5

PGY2

By the transition from PGY2 to PGY3 years, the orthopaedic surgery resident should have achieved the following educational goals:

1. Proficiency in the basics of history and physical examination
2. Performance and progress in the development of cognitive and interpersonal skills, ethics, manual abilities, and affective qualities
3. Knowledge of general principles of musculoskeletal diseases and their manifestation
4. Acquisition of a reasonable amount of knowledge of orthopaedic disorders in both the adult and pediatric populations.
5. Development of methods of thinking, questioning, and reading
6. Development of basics of overall patient care
7. Demonstrated skill in casting, bracing, splinting, and traction.
8. Demonstrated ability to manage emergent orthopaedic disorders in Emergency Room under supervision of senior resident
9. Demonstrated performance in all scheduled rotations
10. Exemplary attendance and participation in all conferences and educational activities

PGY3

By the transition from the PGY3 to the PGY4 level, the orthopaedic surgery resident should have achieved the following educational goals:

1. Continued progress in the development of cognitive and interpersonal skills, ethics, manual abilities, and affective qualities
2. Progressive assumption of some of the responsibility of patient care and of the decision making process
3. Demonstrated increase in knowledge base and in surgical techniques
4. Adequate performance with increases surgical experience
5. Demonstrated improvement in technical skills
6. Assumption of teaching role for non-orthopaedic residents
7. Continued excellence in management of emergent orthopaedic disorders in the Emergency Room
8. Acquisition of a thorough knowledge of orthopaedics
9. Demonstrated performance in all scheduled rotations
10. Continued exemplary attendance and participation in all conferences and educational activities

PGY4
By the transition from the PGY4 to PGY5 level, the orthopaedic surgery residents should have achieved the following educational goals:

1. Continued progress in the development of cognitive and interpersonal skills, ethics, manual abilities, and affective qualities
2. Increased responsibility for patient care
3. Demonstrated ability to cope with increased responsibility and expectation
4. Assumption of responsibility level consistent with that of a chief resident
5. Demonstrated performance in supervisory capacity of junior orthopaedic residents
6. Honing of principles for trauma management via the team approach
7. Assumption of supervisory role in care of emergent orthopaedic problems in the emergency room (back-up call)
8. Demonstrated performance in all scheduled rotations
9. Exemplary attendance and participation in all conferences and educational activities

**PGY5**

By the end of the final year of training, the orthopaedic surgery resident should have achieved the following educational goals:

1. Marked performance and progress in the development of cognitive and interpersonal skills, ethics, manual abilities, and affective qualities
2. Demonstrated competence in total patient management (pre-admission care, hospital care, operative care, and follow-up care, including rehabilitation)
3. Fine tuning of surgical skills
4. Effective management of chief resident clinic
5. Adequate experience in non-operative patient diagnosis
6. Full responsibility for performance and education of junior residents and interns
7. Excellence in the care of emergent orthopaedic disorders in the emergency room setting
8. Demonstrated performance in assigned administrative role
9. Complete knowledge of medical ethics
10. Excellent performance in all scheduled rotations in final year as well as all orthopaedic rotations undertaken while in program
11. Exemplary attendance and participation in all conferences and educational activities
Goals and Objectives
Trauma Surgery/Acute Care Surgery – PGY1

General Rotation Information:

The Acute Care Surgery rotation takes place within the Division of General Surgery. While on this rotation, the resident will learn how to develop an organized approach to the assessment, resuscitation, stabilization, and provision of definitive care for the trauma patient. The resident will also learn to recognize immediate life and limb threatening injuries.

I. Core Competency Areas

By the end of the PGY1 rotation in Trauma Surgery/Acute Care Surgery, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team
Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific General Cognitive Knowledge

By the end of the PGY1 rotation in Trauma Surgery/Acute Care Surgery, the resident should:

1. Understand the mechanism of injury, pathophysiology, course and complications of trauma
2. Understand the pathophysiology, clinical course, and complications of disorders of the appendix
3. Understand the pathophysiology, clinical course, and complications of disorders of the gall bladder
4. Understand the pathophysiology, clinical course, and complications of acute injuries to the digestive system
5. Understand the special considerations in the evaluation and management of pregnant, pediatric, and geriatric trauma patients
6. Understand the principles of disaster management and burn management
7. Learn the techniques of spine immobilization in trauma victims
8. Understand the principles involved in the diagnosis and management of compartment syndrome
9. Understand the appropriate use of analgesics and sedatives in trauma patients
10. Understand the appropriate use of antibiotics and tetanus prophylaxis in trauma patients
11. Understand the principles involved in the diagnosis and management of spinal cord injuries
12. Understand how to calculate the Glasgow Coma scale and discuss its role in the evaluation of head injured patients

III. Specialty Specific Psychomotor Skills

By the end of the PGY1 rotation in Trauma Surgery/Acute Care Surgery, the resident should be able to:

1. Become proficient in the techniques and understand the indications for central venous access, arterial access, nasotracheal and oral tracheal intubation, mechanical ventilation, nasogastric intubation, foley catheter insertion, peritoneal lavage, trauma ultrasound, cricothyroidotomy, chest tube thoracostomy, Emergency Department thoracotomy MAST application and removal, venous cut down, rapid infusion and suture techniques.
2. Demonstrate the ability to rapidly and thoroughly assess victims of major and minor trauma.
3. Demonstrate proficiency in the management of fluid resuscitation of the trauma victim.
4. Demonstrate proficiency in pre and post operative management of disorders of the appendix
5. Demonstrate proficiency in pre and post operative management of disorders of the gall bladder
6. Demonstrate proficiency in pre and post operative management of acute injuries to the digestive system
7. Interpret radiographs in trauma patients, including chest, cervical, thoracic and lumbar spine, pelvis and extremity films.
8. Manage soft tissue injuries, including lacerations, avulsions and high pressure injection injuries.
9. Coordinate consultants involved in the care of multiple trauma patients.
10. Manage the acutely burned patient including minor and major injuries.
11. Proficiency in diagnosing and treating smoke inhalation
12. Assess and manage facial trauma.
13. Evaluate and manage anterior neck injuries both blunt and penetrating.
14. Assess and manage both penetrating and blunt chest trauma, blunt and penetrating abdominal trauma and the ability to diagnose and treat pelvic fractures.
15. Provide care of post-trauma patients throughout the entire spectrum of care from the ICU to the floor discharge.
Goals and Objectives
Anesthesiology Rotation – PGY1 Level

I. Core Competency Areas

By the end of the PGY1 rotation in Anesthesiology, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY1 rotation in Anesthesiology, the resident should:

1. Understand the implications of medical “preparation” for elective, urgent, and emergent surgical procedures
2. Appreciate how patients’ underlying illnesses, surgical procedure performed and positioning will impact choice of anesthetic
3. Learn options of anesthetic techniques for different procedures as well as the risks and benefits involved. These include monitored anesthesia care (MAC), general spinal/epidural anesthesia, brachial plexus blocks, femoral and sciatic nerve blocks, IV regional, and paravertebral/intercostals blocks.
4. Appreciate how regional anesthesia can be employed as a sole anesthetic, in combination with general anesthesia, and for postoperative analgesia.
5. Understand how anticoagulation/anticoagulants may alter anesthetic plan of regional technique.
6. Learn appropriateness of preoperative sedation as well as risks and benefits.
7. Be familiar with all local anesthetics and learn the maximum recommended doses as well as the toxicity profile of the most commonly used anesthetics.
8. Learn standard preoperative and intraoperative patient monitoring and positioning.
9. Become familiar with the basic pharmacology/physiology of the most commonly used induction/sedative drugs, inhalational agents, and muscle relaxants.
10. Understand intraoperative hemodynamic monitoring and principles of controlled hypotension.
11. Appreciate criteria for patient discharge

III. Specialty Specific Psychomotor Skills

By the end of the PGY1 rotation in Anesthesiology, the resident should be able to:

1. Become proficient in completing anesthesia preoperative assessments including complete airway evaluations.
2. Become more comfortable with starting peripheral intravenous lines
3. Learn to evaluate nerve blocks and options to supplement peripheral nerve blocks.
4. Practice airway management with emphasis on mask ventilation.
Goals and Objectives
Emergency Medicine Rotation – PGY1

General Rotation Information:

The Emergency Medicine rotation is intended to provide the PGY1 resident with experience in management of patients with emergent surgical and/or medical problems. The resident interacts with the emergency room in several settings. During the PGY 1 year the resident is assigned to the emergency room service for a one-month period of time. During this time the resident sees patients and is supervised by the emergency medicine staff. Residents are required to see the patient and then in concert with the attending emergency room physicians make decisions concerning the diagnosis and appropriate treatment plans. The resident is required to dictate a note regarding participation with the emergency room patient.

I. Core Competency Areas

By the end of the PGY1 rotation in Emergency Medicine, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

**Professionalism**

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

**Systems-Based Practice**

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

**II. Specialty Specific Knowledge**

*By the end of the PGY1 rotation in Emergency Medicine, the resident should:*

1. Evaluate and manage multiple patients simultaneously
2. Manage the patient throughout the entire emergency department visit and arrange for proper disposition
3. Interpret laboratory data and radiographic studies (i.e. x-rays, CT scans, MRI’s)
4. Develop a differential diagnosis and order appropriate diagnostic studies
5. Maintain a clear and accurate record of the patient visit

**III. Specialty Specific Psychomotor Skills**

*By the end of the PGY1 rotation in Emergency Medicine, the resident should be able to:*

1. Demonstrate proficiency in assessing a patient in a timely fashion and develop a logical management plan
2. Demonstrate proficiency in foreign body removal from soft tissues and eyes
3. Demonstrate proficiency in fracture reduction and splint placement
4. Demonstrate proficiency in obtaining ABG’s and peripheral IV access
5. Demonstrate proficiency in the management of soft tissue injuries
6. Demonstrate proficiency in the repair of simple and complex lacerations
Goals and Objectives

Adult Orthopaedics Goals - PGY1

General Rotation Information:

The Orthopaedic rotation is intended to provide the PGY1 orthopaedic resident with an introduction to the diagnosis and management of orthopaedic disorders. The focus of this rotation is on developing the proper thought processes and the basics of history and physical examination as well as the general principles of musculoskeletal diseases, pathology, and their manifestation. Residents on this rotation will spend the majority of their time on the Orthopaedic Trauma Service. Trauma was chosen because it exposes the Orthopaedic intern to a large number of patients, both inpatient and outpatient, with a wide variety of musculoskeletal problems. Emphasis will be placed on the initial history, physical examination, imaging and treatment of patients with skeletal injury. Introduction to definitive methods of care will be introduced in a graded fashion. This rotation is under the guidance of the Department of Orthopaedic Surgery, and is directed by Dr. Laura Phieffer.

I. Core Competency Areas

By the end of the PGY1 rotation in Orthopaedics, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of one’s own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals
Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY1 rotation in Orthopaedics, the resident should:

1. Understand the diagnosis and management of orthopaedic disorder
2. Understand the general principles of musculoskeletal disorders, pathology, and their manifestation
3. Have developed the proper thought processes

III. Specialty Specific Psychomotor Skills

By the end of the PGY1 rotation in Orthopaedics, the resident should be able to:

1. The PGY-1 will be capable of performing a thorough and accurate history.
2. The PGY-1 will be capable of performing a complete physical examination, with emphasis on the examination of the musculoskeletal system.
3. The PGY-1 will demonstrate proficiency in the initial evaluation of patients in the clinic, the emergency department, and in-patient settings.
4. The PGY-1 will be expected to demonstrate level appropriate surgical skills.
5. The PGY-1 will demonstrate effective patient management skills, in both the inpatient and outpatient settings.
Pediatric Radiology Goals and Objectives – PGY1 Level

I. Core Competency Areas

By the end of the PGY1 rotation in Pediatric Radiology, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team
Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY1 rotation in Pediatric Radiology, the resident should:

1) Understand the basic principles of reading plain radiographs of the musculoskeletal system
2) Understand the basic principles of ordering plain radiographs necessary to diagnose orthopaedic clinical problems arising in the acute care setting
3) Understand the basic principles of describing a fracture on plain radiography
4) Understand the basic principles of advanced imaging studies of the musculoskeletal system including but not limited to whole body bone scanning, MRI, CT
5) Understand the basic principles of interpretation of advanced imaging studies of the musculoskeletal system including but not limited to whole body bone scanning, MRI, CT
6) Develop beginning level competency in reading plain radiographs, whole body bone scans, MRI, and CT scans of the musculoskeletal system
7) Understand what additional imaging tests (if any) are needed after plain radiographs are performed to formulate an appropriate differential diagnosis
Goals and Objectives
Plastic Surgery/Burn Care Rotation – PGY1

General Rotation Information:
The Plastic Surgery/Burn Care rotation takes place within the Division of Plastic Surgery. This rotation focuses on the teaching of the basic principles of wound management such as skin grafts and flap construction. The majority of this rotation is outpatient in nature, but the resident will also assist in the operating room. The resident on this service will also participate in the care of the burn patient under the supervision of the critical care director and the burn service attending physicians.

I. Core Competency Areas

By the end of the PGY1 rotation in Plastic Surgery, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of one’s own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team
Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY1 rotation in Plastic Surgery and Burn Care, the resident should:

1. Understand the basic principles of wound management.
2. Understand the basic principles of skin grafts and flap construction
3. Understand the basic principles of burn care
4. Understand the basic principles of certain microvascular procedures

III. Specialty Specific Psychomotor Skills

By the end of the PGY1 rotation in Plastic Surgery and Burn Care, the resident should be able to:

1. Accurately perform a physical examination.
2. Write up an accurate patient history.
3. Demonstrate proficiency in patient evaluation
4. Demonstrate basic operative skills and good surgical technique
5. Demonstrate good judgement in patient management
6. Demonstrate proficiency in the provision of pre and postoperative care of patients.
Goals and Objectives
Surgical Intensive Care Rotation – PGY1

General Rotation Information:

The Surgical Intensive Care (SICU) rotation provides PGY1 residents with co-management responsibilities with the primary surgical service. This rotation is intended to provide the resident with structured education in multi-system trauma and intensive care. Specifically, it involves the management of shock, sepsis, myocardial disease, multi-organ failure, and respiratory failure. The goal of the rotation is to provide the resident with experience in the care of critically ill patients.

I. Core Competency Areas

By the end of the PGY1 rotation in SICU, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team
Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY1 rotation in SICU, the resident should:

1. Understand the management of shock, sepsis, myocardial disease, multiple organ failure and respiratory failure.
2. Understand the basic management principles of SICU patients

III. Specialty Specific Psychomotor Skills

By the end of the PGY1 rotation in SICU, the resident should be able to:

1. Accurately perform a physical examination.
2. Write up an accurate patient history.
3. Demonstrate proficiency in patient evaluation
4. Demonstrate effective patient management skills
5. Demonstrate proficiency in performing procedures such as endotracheal intubation and invasive monitoring
6. Manage ventilators
Goals and Objectives
Vascular Surgery Rotation – PGY1

General Rotation Information:

The Vascular Surgery rotation takes place in the General Vascular Surgery Division of the Department of Surgery. This rotation is intended to provide PGY1 residents with experience in patient management of common vascular problems. Residents attend the vascular surgery clinic, participate in the preoperative work-up, perform routine vascular surgery, and often participate in the long term care decision for these patients, all under the direct supervision of an attending.

I. Core Competency Areas

By the end of the PGY1 rotation in Vascular Surgery the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team
Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific General Cognitive Knowledge

By the end of the PGY1 rotation in Vascular Surgery, the resident should:

1. Understand the preoperative, intraoperative, and postoperative care of vascular patients.
2. Understand the risks and potential complications of vascular procedures
3. Understand the preoperative workup of vascular patients.
4. Have a basic understanding of surgical anesthesia principles and procedures

III. Specialty Specific Psychomotor Skills

By the end of the PGY1 rotation in Vascular Surgery, the resident should be able to:

1. Accurately perform a physical examination.
2. Write up an accurate patient history.
3. Demonstrate proficiency in patient evaluation
4. Demonstrate basic operative skills and good surgical technique
5. Demonstrate effective patient management skills in both the outpatient and inpatient settings.
6. Demonstrate proficiency in the provision of pre and postoperative care of patients.
7. Perform routine vascular surgery procedures
8. Make long term care decisions for vascular patients.
The Ohio State University Department of Orthopaedics

Residency Curriculum

Foot & Ankle
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  - At the beginning of the rotation
  - At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Foot and Ankle Service Information

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Office: 614-827-8700
4605 Sawmill Rd., Columbus, OH, 43220

Candice Burke, Administrative Assistant to Dr. Calhoun
Jill McPeak, Administrative Assistant to Dr. Alexander

Schedule

During the two month rotation, PGY-4 will spend two months with Dr. Alexander.

Dr Alexander
Monday: OR UHE, beginning at 7:00am
Tuesday: Clinic UHE
Wednesday: OR UHE, beginning at 7:00am
Thursday: Foot and ankle conference at 7:00am at Moorehouse followed by Clinic at UHE at 8:30
Friday: Sports Foot and Ankle Clinic at Morehouse sports medicine department 1:00 pm
Delineation of Resident Responsibilities: Orthopaedic Foot and Ankle Service: PGY4

I. Resident Responsibilities for Patient Care

- **Rounding**  Attending rounds will be done daily at a time to be discussed between the resident and attending staff. If the attending is unable to round with the residents in the morning, residents are expected to have seen and written a complete detailed note on each patient prior to going to the OR or clinic for the day. Consult patients will be followed based on acuity to be decided upon discussion between the attending staff and resident. Communication is mandatory with the inpatient and outpatient PCRM’s as needed. The P.A. will be used as needed to assist the resident staff with patient care.

- **Orders**  All orders will be done via the CAPI order entry system. There will be a standard order set for foot and ankle patients. Please use this set as it has been standardized for most of the post-operative needs for the foot and ankle patients. For inpatients, in most cases IV analgesics should be discontinued after the first 24 hours and post-op IV antibiotics after two doses.

- **Surgical patient care**  The resident should be familiar with the patients going to surgery and is responsible for performing all surgical patient’s H&Ps. It is also important that the resident be familiar with all surgical procedures being performed.

- **Imaging studies for surgery**  It is the resident’s responsibility to make sure that every patient going to surgery has all imaging studies, if they have been performed, available in the OR. The resident should have reviewed the studies and be knowledgeable about them before surgery. It is also the resident’s responsibility to make sure that the studies have been brought up on the monitor in the OR before scrubbing for the case.

- **Non-surgical admissions**  The attending physician or physician covering must be contacted relative to each new admission, as soon as possible after that patient is admitted to the floor. In infected patients it is the resident’s responsibility to be certain that necessary cultures are taken and antibiotic administration (not just orders placed) initiated within 2 to 3 hours of hospital admission. In almost all cases these patients should be, at a minimum, on bedrest with BRP (in some cases on strict bedrest) with the affected part elevated well above the heart. In the case of the foot or ankle this means toes above the nose.
• **Consults**  If you are called about a consult please call the attending immediately to inform him of the consult if you think there is any chance he may be unaware of it. This may seem extreme but if the attending is at the hospital when the consult is submitted, then leaves unaware of the consult and subsequently has to come back to see the patient this may result in significant inconvenience for the attending and delay in the patient being seen. Immediately after seeing the patient the resident should directly call the responsible attending.

• **Preferences**  All dressings should be changed on POD #1 if the patient is being discharged and POD #2 if they are not. Dressings are to be changed daily thereafter unless otherwise specified. Drains are left in place and the patient kept on IV antibiotics until output is less then 30cc per 24 hour shift. Weight bearing status and physical therapy orders should be discussed on a case-by-case basis. In general almost all bone and tendon procedures on the midfoot, hindfoot, and ankle will be NWB post op and the majority of forefoot procedures patients will be WBAT in a post op shoe. First MTP arthrodesis patients will be discharged in a stiff sole shoe and any patients with pins protruding from their toes will require a wooden shoe with a polypropylene toe guard. Post-op elevation of the operative limb such that the patient’s toes are above their nose is mandatory. All patients should maintain this posture 45 to 50 minutes of every hour. When patients are not recumbent with their leg elevated they should be encouraged to be mobile. Sitting in a chair should be discouraged unless it is mandatory for cardiopulmonary conditions.

• **Discharge**  The standard OSU mechanism of electronic discharge instructions is to be used at all times. This should be a detailed account of the patient’s care so the primary care physician who receives a faxed copy upon the patient’s discharge will understand the plan of care. If you don’t know the detailed plan, please ask. DO NOT DISCHARGE a patient without reviewing all laboratory values and radiographic studies first!

The discharge summary should be done as close as possible to the discharge date. This allows for easier recollection on the part of the resident for complicated patients. The discharge summary must include a complete history, pertinent physical exam, summary of care and reason for hospital admission. Use the EDI for specific follow-up information. This is the only way that rehabilitation hospitals sometimes are able to discern follow-up care.

Please try to have discharge orders written prior to 10 am whenever possible.

In general most inpatients are seen post-operatively 10 to 14 days after surgery unless you are told otherwise. Most outpatients will be seen in 24 to 48 hours. Pain medication is unique to each patient and should be discussed with the attending staff if you are unsure. Most inpatients should be discharged on Vicodin or Tylenol #3. Outpatients are generally prescribed Percocet 5/325
unless for some reason contraindicated. Pain medications should be sufficient for 2-3 weeks (30 with one refill).

- **Documentation**  Please make sure daily notes are legible, in SOAP note format, and the detailed care plan for the day is outlined. This will save you many phone calls and will allow the ancillary caregivers to provide better care for the patient as well. Check all laboratory values for tests ordered in the post-op period and document the abnormal labs that need addressed in the care of the patient.

Residents are responsible for a thorough pre-operative history and physical exam and as well as a brief OP note describing the procedure. The attending physician will dictate the operative note unless he requests the resident do so. Any questions should be directed toward the attending staff.

All consults must document a COMPLETE history including a review of systems, past medical and surgical history, family history, allergies, medicines, and social history. The attending staffing the consult must be documented and a specific plan generated after discussion with the attending staff.

Many other questions will arise on an as needed basis. Constant communication between all members of the team is the best way to get an optimal educational experience and provide the best care possible for each patient.

**II. Resident Level of Responsibility for Patient Care**

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

**III. Resident Supervision**

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

The person ultimately responsible for the patient is the attending. The attending should be notified of any adverse change in a patient’s medical condition or vital signs, persistent pain that is not controlled with reasonable doses of analgesics, significant amounts of drainage from wounds, or of patients or patient’s family members that are upset about the care they are receiving. **The threshold to inform the attending of problems should be very low.**

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of
the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

IV. Performance Feedback

Attending staff members on the foot and ankle service are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Goals and Objectives
Foot and Ankle Rotation – PGY3

I. Core Competency Areas

By the end of the PGY1 rotation in Foot and Ankle Surgery, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice
1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

*By the end of the PGY3 rotation in foot and ankle surgery, the resident should:*

1. Understand the gross anatomy and histology of the normal foot
2. Understand the kinematics, kinetics, and wear characteristics of adult foot and ankle biomechanics.
3. Understand neuromuscular and neurologic diseases as they apply to the foot and ankle (i.e. ALS, CP, CVA, CMT, Diabetes Mellitus, Myelodysplasia, etc).
4. Understand localized entrapment neuropathies such as anterior tarsal tunnel, digital nerve compression, Morton’s neuroma, and sural nerve compression.
5. Understand circulatory disturbances such as arterial aneurysm, Distal arterial occlusive disease, lymphedema, and thrombosis.
6. Understand dermatologic and nail disorders of the nail and adjacent soft tissue
7. Understand common tumors of the foot and ankle such as giant cell tumors, fibroma, ganglion, lipoma, etc.
8. Understand infectious and noninfectious inflammatory disorders of the foot and ankle such as bursitis and plantar fascitis.
9. Understand the principles and complications of rheumatoid foot and ankle
10. Understand the examination, diagnosis, and evaluation of hallux valgus, hallux rigidus, hallux varus, and metatarsus primus varus.
11. Understand and identify the different types of forefoot and toe deformities
12. Understand gout and periarticular alterations such as calcific deposits, subtalar arthrodesis, metatarsal head resection, and ankle joint arthrodesis.
13. Understand and identify the different types of foot and ankle fractures and dislocations
14. Understand hindfoot pathology such as calcaneal spurs, fascitis, bursitis, Achilles tendonitis, varus, valgus of the heel.
15. Understand and identify stress fractures of the fibula, metatarsals, navicular, and tibia.
17. Understand the etiology and treatment of cavus foot
18. Understand the classification, roentgenographic evaluation, and treatment (both operative and non operative) of flatfoot or pes planus.
19. Ligament reconstruction of the ankle.

III. Specialty Specific Psychomotor Skills

*By the end of the PGY3 rotation in foot and ankle surgery, the resident should be able to:*

1. Interpret plain radiographs, CAT scans, MR Imaging
2. Perform procedures related to the forefoot (i.e. partial matrixectomy, resection of tailor’s bunion, bunionectomy, removal of interdigital neuroma, hallux interphalangeal fusion with tendon transfer)
3. Perform procedures related to the rearfoot (i.e. triple arthrodesis, resection of Haglund’s deformity, tarsal tunnel release, plantar fascial stripping, Achilles tendon repair).
4. Perform procedures related to the ankle such as ankle arthroscopy, repair of OCD of the talus, and ankle fusion.
5. Perform amputations (i.e. digital disarticulation, Syme’s amputation, Lisfranc’s amputation, Chopart’s amputation, below knee amputation, calcanectomy).
6. Perform trauma procedures related to the foot and ankle (i.e. ORIF of displaced phalangeal fractures, ORIF of Lisfranc fracture dislocation, ORIF of talar fractures, etc.)
Goals and Objectives
Foot and Ankle Rotation – PGY4

I. Core Competency Areas

By the end of the PGY4 rotation in Foot and Ankle Surgery, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice
1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY4 rotation in foot and ankle surgery, the resident should:

1. Understand the gross anatomy and histology of the normal foot
2. Understand adult foot and ankle biomechanics.
3. Understand plain radiographic views of the foot and ankle and the indications for CT, MRI and nuclear medicine scans and stress radiographs (as well as how to perform stress radiographs).
4. Understand neuromuscular and neurologic diseases as they apply to the foot and ankle (i.e. CP, CVA, CMT, Diabetes Mellitus, Myelodysplasia, etc).
5. Understand the musculoskeletal consequences of peripheral neuropathy, specifically the clinical signs of acute Charcot arthropathy and its immediate and definitive management.
6. Understand localized entrapment neuropathies such as tarsal tunnel, superficial peroneal nerve entrapment, and Morton’s neuroma.
7. Understand circulatory disturbances such as diabetes related peripheral vascular disease, lymphedema, and venous thromboembolic disease.
8. Understand disorders of the nail and adjacent soft tissue
9. Understand to be able to radiographically identify the more common foot and ankle tumors such as giant cell tumors, ganglion, synovial cell sarcoma etc.
10. Understand investigation and treatment of infectious and noninfectious inflammatory disorders of the foot and ankle.
11. Understand the principles and complications of rheumatoid foot and ankle.
12. Understand the evaluation and treatment of hallux valgus, hallux rigidus, and hallux varus.
13. Understand the evaluation and treatment of toe deformities.
14. Understand the evaluation and treatment of metatarsalgia.
15. Understand and classify the more common types of foot and ankle fractures and dislocations
16. Understand hindfoot pathology such as calcaneal spurs, fascitis, bursitis, Achilles tendinosis, varus, valgus of the heel.
17. Understand and identify stress fractures of the fibula, metatarsals, navicular, and tibia.
18. Understand the etiology and treatment of cavus foot.
19. Understand the classification, roentgenographic evaluation, and treatment (both operative and non operative) pes planus.
20. Understand the treatment of tarsal coalition and residual clubfoot deformity in adults.
21. Understand ankle ligament injuries and their reconstruction

III. Specialty Specific Psychomotor Skills

By the end of the PGY4 rotation in foot and ankle surgery, the resident should be able to:

1. Interpret plain radiographs, CAT scans, MR Imaging
2. Perform procedures related to the forefoot (i.e. partial matrixectomy, resection of tailor’s bunion, hallux valgus correction, cheilectomy, first MTP arthrodesis, removal of interdigital neuroma, hallux interphalangeal fusion with tendon transfer)
3. Perform procedures related to the rearfoot (i.e. subtalar and triple arthrodesis, resection of Haglund’s deformity, tarsal tunnel decompression, plantar fascia release and excision, Achilles tendon repair and reconstruction).
4. Perform procedures related to the ankle (i.e. ankle arthroscopy, treatment of OCD of the talus, and ankle fusion and ankle ligament reconstruction).
5. Perform amputations (i.e. digital disarticulation, transmetatarsal amputation, below knee amputation)
6. Perform trauma procedures related to the foot and ankle (i.e. ORIF of displaced phalangeal fractures, ORIF of Lisfranc fracture dislocation, ORIF of tarsal and ankle fractures, etc.)
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

**Physical Exam Competencies**

*Foot & Ankle Service: PGY3 and PGY4*

- Footwear assessment:
  - Sole wear pattern

- Complete normal physical examination of the foot and ankle, including:
  - Assessment of gait
  - Inspection
  - Palpation
  - Range of motion, including:
    - Ankle dorsiflexion/plantarflexion
    - Subtalar inversion/eversion
    - Medial column mobility
    - Great toe motion: MTP and IP
    - Interphalangeal motion
  - Neurovascular assessment:
    - DP and PT pulse
    - Muscle testing as indicated

- Identify common foot deformities:
  - Bunions
  - Pes planus
  - Pes Cavus
  - Claw toe, Hammer toe, Mallet toe, Crossover toe
  - Bunionette
  - Rockerbottom deformity

**Special Tests:**

- “Too many toes” sign
- Single and double limb heel rise test
- Toe / heel walking
- Semmes-Weinstein monofilament sensation testing
- Percussion test for tarsal tunnel syndrome
- Silfverskiold test (ankle dorsiflexion with knee flexed and knee extended)
- Toe-translation test (digital drawer) test
- Anterior drawer test
- Talar tilt test
- Syndesmotic squeeze test
- External rotation stress test
☐ Forefoot compression (Mulder’s click)
☐ Heel squeeze test
☐ Thompson test
☐ Coleman block test
☐ Homan’s sign
By the end of the PGY3 rotation in foot & ankle, the resident should be able to perform the following procedures:

Amputations:
   - Toe amputation
   - Transmetatarsal amputation
   - Below knee amputation
   - Above knee amputation

First ray procedures:
   - Partial and total nail ablation
   - IP and first MTP arthrodesis
   - Chevron osteotomy
   - Modified McBride procedure
   - Proximal MT osteotomy for angular correction

Lesser ray procedures:
   - Lesser toe IP arthrodesis
   - Resection of head of proximal phalanx
   - Girglestone-Taylor flexor tendon transfer
   - Weil osteotomy for MT shortening
   - MT head condylectomy
   - 5th MT osteotomy for bunionette correction
   - ORIF of MT fractures

Midfoot procedures:
   - LisFranc injury fixation
   - ORIF of Jones fracture

Hindfoot procedures:
   - Achilles tendon debridement
   - Plantar fascia release
   - Subtalar arthrodesis
   - Gastroc slide (Strayer procedure)

Ankle procedures:
   - ORIF of bimalleolar fracture
   - Ankle arthroscopy for simple debridement
Brostrom ankle ligament reconstruction

Miscellaneous procedures:
Harvest of iliac crest bone graft
Harvest of proximal and distal tibial bone graft
Harvest of calcaneal bone graft
Surgical Competencies
Foot & Ankle Service: PGY4

In addition to the surgical competencies indicated for the PGY3 rotation in foot & ankle, by the end of PGY4 rotation in foot & ankle, the resident should be able to perform the following procedures:

Forefoot procedures:
- Rheumatoid forefoot reconstruction
- Multiple MT osteotomies for cavus foot reconstruction

Midfoot procedures
- Midfoot arthrodesis
- ORIF of complex midfoot fractures and dislocations

Hindfoot procedures:
- ORIF of calcaneal, talar, and navicular fractures
- Naviculocuneiform, talonavicular, and triple arthrodesis
- Achilles tendon reconstruction with FHL transfer
- Correction of pes planus
- Correction of pes cavus

Ankle procedures:
- ORIF of trimalleolar and pilon fractures
- Ankle arthrodesis techniques
- Ankle arthroscopy for debridement of osteochondral lesions of the talus
- Ankle arthroscopy for debridement of tibial and talar osteophytes
- Repair for subluxating peroneal tendons
- Peroneal tendon debridement and reconstruction for tendinosis
- Tibialis posterior tendon reconstruction with FDL transfer for tendinosis
- Complex repair with tendon weave for recurrent ankle instability
- Tendon transfers for drop foot and other paralysis
The Ohio State University
Department of Orthopaedics

Residency Curriculum

Hand/Upper Extremity
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  
  o At the beginning of the rotation
  o At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
Hand and Upper Extremity Resident Rotation Information

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Schedule:
The resident will spend time with all physicians during the two month rotation. The resident schedule will be set to allow for continuity of patient care in the clinic setting and the operating room.

In addition to clinic and surgery assignments the resident will attend hand clinic on some Thursday at CMC and Friday didactic conferences.
There is a mandatory weekly hand conference Tuesday 4pm at the Hand Center. The conference is structured specifically for resident education. Weekly topics are published in advance on the monthly schedule. It is expected the resident will be familiar with the subject. The conference will also include case presentations by attendings residents and mid-level providers. Please be familiar with at least two cases that can be presented for discussion. Once monthly the Tuesday conference will be a resident presentation of a topic of interest. Please discuss the topic in advance with Dr. Awan for approval.

Vacation and time off policy: Due to limited staffing in the hand center and advance planning of clinical assignments resident vacation during the two month hand rotation will be limited and must be approved in advance by Dr. Ruff and follow the resident procedure for time off. If you do not know the procedure, please contact Julia Panzo.

The physician clinic and surgery schedule is attached. It is your responsibility to check your schedule, it is subject to change.

### OSU Hand and Upper Extremity Center
#### Monthly Rotation Schedule

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dr. Ruff</strong></td>
<td>Clinic am Gowdy</td>
<td>OR Gowdy</td>
<td>Clinic Gowdy</td>
<td>Amputation clinic once a month (Add on OR)</td>
<td>Administrative</td>
</tr>
<tr>
<td><strong>Dr. Klinefelter</strong></td>
<td>1 OR-Gowdy</td>
<td>Clinic Gowdy</td>
<td>OR 1(^{st}), 4(^{th}) and 5(^{th}) Gowdy – check schedule CMC at main on 3rd</td>
<td>Clinic Gowdy</td>
<td>2(^{nd}) Thurs CMC</td>
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<td></td>
<td>2 OR-East</td>
<td>Clinic Gowdy</td>
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<td>3 OR-Gowdy</td>
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<td>4 OR-Gowdy</td>
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<td></td>
<td>5 OR-East</td>
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</tr>
<tr>
<td><strong>Dr. Janz</strong></td>
<td>OR Gowdy</td>
<td>Clinic Gowdy</td>
<td>OR Main</td>
<td>½ day of Hand Clinic 1(^{st}), 3(^{rd}) and 5(^{th}) Thursdays</td>
<td>Administrative</td>
</tr>
<tr>
<td><strong>Dr. Awan</strong></td>
<td>Clinic Gowdy</td>
<td>OR East or Gowdy Add on cases</td>
<td>1 OR-Gowdy 2 OR-Gowdy 3 OR-Gwd/East 4 OR-Gowdy 5 OR-Gwd/East</td>
<td>Clinic Gowdy</td>
<td>OR Gowdy am</td>
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<td>Clinic pm</td>
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<tr>
<td><strong>Dr. Butler</strong></td>
<td>OR East</td>
<td>(Clinic Lewis Center)</td>
<td>Administrative</td>
<td>OR Gowdy</td>
<td>Clinic Gowdy</td>
</tr>
</tbody>
</table>
The Ohio State University  
Department of Orthopaedic and Plastic Surgery  
Division of Hand and Upper Extremity Surgery  
Orthopaedic Residency Program

Hand and Upper Extremity Resident Rotation Information

Delineation of Resident Responsibilities: PGY 3

I. Patient Care:
   a. Rounds: The resident on the hand and upper extremity surgery rotation will make rounds with the senior resident on all inpatients on the hand service on a daily basis prior to clinic or OR. All decisions regarding the treatment plan and discharge planning will be made in consultation with the senior resident and the attending. Communication is mandatory with inpatient and outpatient follow-up. The mid-level provider will be used as needed to assist the resident staff with patient care.
   b. Preferences: Each hand surgery attending physician has preferences regarding the appropriate time for the first postoperative follow-up visit as well as preferences regarding dressing changes. Appropriate planning should be discussed with the attending physician on each patient.
   c. Discharge: The standard mechanism of electronic discharge is to be used at all times. This report should include a detailed account of the patient's care to the primary care physician who receives a faxed copy upon the patient's discharge to understand the plan of care. Please consult with attending physician if there is any question about the discharge plan. Do not discharge the patient without reviewing all laboratory values and radiographic studies first.

The discharge summary should be dictated at the time of the discharge to allow for accurate recollection on the part of the resident of the hospital course. A discharge summary must include a complete history, pertinent physical exam, summary of care and it reason for Hospital admission.

d. Documentation: Documentation in the clinic is done using IHIS electronic medical record. The resident must be familiar with this electronic record keeping protocol. Both computer based classes as well as didactic classes are available for learning. In the clinic setting resident documentation must be reviewed by and signed off on by the attending physician before the patient encountered can be closed.

II. Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the resident has a one on one relationship with the attending. The level of responsibility given by the attending to each resident is determined by the attending, depending on the
attending assessment of the resident’s knowledge and skills, and the complexity of the procedure.

III. Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY 4 and above) are also directly responsible for the supervision of a junior residents. This applies to all of the above situations. Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5) are responsible for the supervision of all residents, regardless of PGY year. Do not hesitate to call upon your senior colleagues for help and consultation in the on-call situation.

IV. Performance Feedback

All attending staff members are available at any time if questions or concerns arise. It is appropriate for the resident to approach and ask questions of their attending during clinic and OR settings. It is expected that the resident will receive feedback from the attending as to their progress during the rotation. At the end of the rotation each attending will evaluate the resident assigned to the service. A meeting will be scheduled with Dr. Ruff at the conclusion of the rotation to discuss performance with the director of hand surgery. A post rotation test will also be given on basic hand surgery topics and principles.
Goals and Objectives
Hand Surgery Rotation – PGY3

I. Core Competency Areas

By the end of the PGY2 rotation in Hand Surgery, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

I. Core Competency

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families.
2. Procurement of thorough, logical, and concise patient histories with emphasis on the musculoskeletal system.
3. Responsiveness to the individual needs of patients and their families.
4. Performance of a physical examination that is accurate, comprehensive, and directed to patient problems. This applies to the clinic, emergency department, and inpatient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis.
7. Formulation and implementation of a complete and effective treatment plan.
8. Counsel of both patient and family in treatment procedure, options, and potential outcomes.
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health.
10. Understanding of and performance of the medical procedures related to treatment plan.
11. Ability to work well with an entire team of health care professionals and be involved in the care of the patient.

Medical Knowledge

1. Exhibit a fund of medical knowledge that is up-to-date and the ability to site literature appropriately.
2. Investigation of topics as needed for clinical assignments.
3. Understanding and use of basic science principles as related to medical practice.

Practice-Based Learning

1. Assessment of one’s own patient management skills and ability to make appropriate changes in practice.
2. Integration of evidence from scientific studies in the care of patient's problems.
3. Demonstration of knowledge of the study designs and statistical methods in order to evaluate scientific studies.
4. Usage of available information technology to obtain and manage information. Familiarity with and ability to record information into the electronic medical record.
5. Willingness to take time to educate students and other health care professionals.

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families.
2. Ability to listen to patients and include them in treatment decisions.
3. Ability to listen to information provided by other members of the health care team.

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent.
2. Demonstration of an ethically sound practice of medicine.
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients.

Systems-Based Practice
1. Knowledge of how to provide cost effective care.
2. Willingness to advocate for patients within the healthcare system.
3. Referral of patient to appropriate practitioners and agencies within the healthcare system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. **Specialty Specific Knowledge**

1. Understand the anatomy and evaluation of vascular disorders of the hand such as tumors, thrombosis, aneurysms vascular injuries etc.
2. Understand the anatomy and pathophysiology of the intrinsic muscles, digital extensor mechanism, and flexor mechanism of the hand and digit: Extrinsic extensor mechanism, interosseus muscles, lumbrical muscles, thenar muscle, hypothenar muscle.
3. Understand hand anesthesia for operative procedures including the following: anatomy and equipment needed to perform: metacarpal block, digital block, wrist block of the median, ulnar and radial nerves, regional anesthesia, brachial plexus block, supraclavicular block, and axillary block.
4. Understand compression neuropathies of the upper extremities including the following: median nerve compression including the pathogenesis, history and physical findings of carpal tunnel syndrome, pronator syndrome, anterior interosseous syndrome; ulnar nerve compression including the pathogenesis, history and physical findings of ulnar tunnel syndrome, cubital tunnel syndrome; radial nerve compression including the pathogenesis, history and physical findings of radial tunnel syndrome, posterior interosseous syndrome; thoracic outlet syndrome, cervical root compression and cervical radiculopathy.
5. Understand the presentation and treatment of specific hand infections such as pulp abscess ( felon), cellulitis, paronychia, pyogenic arthritis, web space abscess, acute suppurative flexor tenosynovitis, herpetic whitlow.
6. Understand the fracture anatomy, fracture description, pertinent classification systems, and treatment options for fractures of the hand and wrist.
7. Understand the principles of replantation surgery including definitions, instrumentation, preparation of amputated part, indications for replantation, surgical technique, vessel repair, postoperative care, failing replant, contraindications of replantation.
8. Understand the anatomy of the wrist and wrist mechanics including both static and dynamic instability patterns of the carpus.
9. Understand the treatment of fractures of the wrist and ligament injuries of the wrist including fractures of the scaphoid, lunate dislocation, perilunate dislocation, Kienbock’s disease, carpal instability.
10. Understand the characteristics, pathogenesis, diagnostic features, and management of osteoarthritis of the hand and wrist.
11. Understand etiology, pathophysiology, anatomy, treatment, surgical techniques, and diagnoses of compartment syndromes.
12. Understand the history, features, etiology, anatomy, pathology, treatment, and long-term results of the Dupuytren’s disease.
13. Understand the anatomy, goals, treatment principles, in treatment methods for skin coverage of fingertip injuries.
14. Understand the types of nail and nailbed injuries the importance of the nail in principles of treatment of these injuries.
15. Understand the anatomy, physiology, classification, and nerve regeneration and repair of peripheral nerves.
16. Understand the principles, definition, indications, and prerequisites of tendon transfers of the hand.
17. Understand etiology, diagnosis, and treatment of tenosynovitis of the hand and forearm (epicondylitis, DeQuervain’s tendonitis, intersection syndrome, etc.)
18. Understand the characteristics, history, pathogenesis, management, and indications for surgery of rheumatoid arthritis.
19. Understand the reasons for splinting, splinting principles, types of splinting, and indications for splinting.
20. Recognized the different types of benign tumors of the hand and wrist such as ganglion, lipoma, benign giant cell tumor, epidermal cyst, etc.
21. Understand the presentation, pathophysiology, and treatment of complex regional pain syndrome.
III. Specialty Specific Psychomotor Skills

1. Perform incision and draining procedures such as paronychia, felon, finger abscess, and suppurative flexor tenosynovitis.
2. Perform primary and delayed primary repair of extensor tendon laceration.
3. Determine anesthesia for finger, hand and wrist surgery.
4. Perform nerve decompression of the wrist, forearm and elbow (carpal tunnel release, Guyon canal release, cubital tunnel release).
5. Perform split thickness skin grafting.
6. Perform amputation of digit. Understand principles of amputation of the forearm elbow, arm, and shoulder level.
8. Perform decompression and tenosynovectomy of the flexor tendon due to stenosing tenosynovitis or rheumatoid tenosynovitis.
10. Perform partial or radical fasciectomy.
11. Understand the concept of and perform Z-plasty closure.
12. Understand the anatomy of and perform nailbed repair and coverage of fingertip and hand wounds. Understand the principles behind the use of local flap coverage (STSG, FTSG, cross finger flap, thenar flap).
13. Understand appropriate surgical sequence of replantation of the digit and wrist and forearm along with successful completion of a microsurgical laboratory course.
Goals and Objectives
Hand Surgery Rotation: PGY5

I. Core Competency Areas

By the end of the PGY5 rotation in Hand Surgery, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

*By the end of the PGY5 rotation in Hand surgery and building upon the experiences from the PGY2 rotation, the resident should:*

1. Refine the knowledge base from the PGY2 and PGY3 rotations (See PGY2 and PGY3 Goals and Objectives)

III. Specialty Specific Psychomotor Skills

*By the end of the PGY5 rotation in hand surgery and building upon the experiences from the PGY2 rotation, the resident should:*

1. Refine the skills acquired in PGY3 rotations (See PGY3 Goals and Objectives)
The Hand and Upper Extremity Service

BASIC CLINICAL EXAMINATION

Hand and Wrist:
□ Complete normal physical examination of the hand and wrist, including:
  □ Inspection:
    • Resting posture of the hand
    • Position of the fingers: Swan neck, Boutonniere, Dupuytren’s
    • Skin, hair, nail changes
    • Swelling – Heberden’s and Bouchard’s nodes, fusiform swelling, ganglions
    • Muscle atrophy – thenar / hypothenar eminence
  □ Palpation
  □ Range of motion:
    • Forearm rotation
    • Wrist – flexion/extension, radial/ulnar deviation
    • Finger – MCP, DIP, PIP joints
    • Thumb – CMC, MCP, IP:
      ▪ Radial abduction
      ▪ Palmar abduction
      ▪ Opposition
  □ Neurovascular:
    • Sensory – radial, median, and ulnar nerves
    • Motor – radial/PIN, median/AIN, motor recurrent branch, ulnar nerve

Special Tests:
□ Carpal tunnel: Tinel’s test, Phalen’s test, median nerve compression test
□ Stability testing of IP, MCP, thumb CMC joints:
  - Assessment of gamekeeper’s thumb (ulnar collateral ligament strain)
  - Shuck test for basilar joint instability
□ CMC grind
□ FDP/FDS flexion tests
□ Watson’s scaphoid shift test
□ DRUJ: piano key test, DRUJ compression test
□ TFCC compression test
□ Murphy’s sign for lunate dislocation
□ Finkelstein test
□ Screen for intersection syndrome
Froment’s sign
Bunnel-Littler test for intrinsic tightness
Lumbrical + finger
Kanavel’s signs of flexor tenosynovitis
Allen’s test

Elbow:
☐ Complete normal examination of the elbow, including:
☐ Inspection:
  o Gross deformity, swelling, bursitis
  o Carrying angle: cubitus valgus, cubitus varus
☐ Palpation:
  o Biceps tendon/ “hook test”
  o Olecranon and olecranon fossa
  o Medial epicondyle
  o Lateral epicondyle
  o Radial head
  o Ulnar nerve
☐ Range of Motion:
  o Flexion / extension
  o Pronation / supination
☐ Neurovascular testing

Special Tests:
☐ Varus stress test
☐ Valgus stress test
☐ Pivot shift test for lateral ulnar collateral instability/Push off Test/Posterior-lateral drawer
☐ Ulnar nerve testing:
  o Tinel’s sign
  o Elbow flexion test
  o Ulnar nerve compression test
  o Ulnar nerve subluxation

☐ Lateral epicondylitis:
  o Resisted wrist extension
  o Passive flexion of the fingers and wrist with the elbow fully extended
  o Long finger extension test

* location of pain to differentiate from radial tunnel syndrome
- Radial deviation with wrist extension – PIN entrapment
- Medial epicondylitis:
  - Resisted wrist flexion
  - Resisted forearm pronation
- Screen for pronator syndrome
- “OK” sign for anterior interosseous nerve syndrome
- Hand of benediction
Surgical Competencies
Hand & Upper Extremity: PGY3

By the end of the PGY3 rotation in Hand and Upper Extremity, the resident should be able to:

1. Perform incision and draining procedures such as paronychia, felon, finger abscess, and suppurative flexor tenosynovitis.
2. Perform primary and delayed primary repair of extensor tendon laceration.
3. Determine anesthesia for finger, hand and wrist surgery.
4. Perform nerve decompression of the wrist, forearm and elbow (carpal tunnel release, Guyon canal release, cubital tunnel release).
5. Perform split thickness skin grafting.
6. Perform amputation of digit. Understand principles of amputation of the forearm elbow, arm, and shoulder level.
8. Perform decompression and tenosynovectomy of the flexor tendon due to stenosing tenosynovitis or rheumatoid tenosynovitis.
10. Perform partial or radical fasciectomy.
11. Understand the concept of and perform Z-plasty closure.
12. Understand the anatomy of and perform nailbed repair and coverage of fingertip and hand wounds. Understand the principles behind the use of local flap coverage (STSG, FTSG, cross finger flap, thenar flap).
13. Understand appropriate surgical sequence of replantation of the digit and wrist and forearm along with successful completion of a microsurgical laboratory course.
Hand & Upper Extremity Reading Lists – PGY3

Residents will use Green’s Operative Hand Surgery Text as the main resource for reading for the rotation.

Each week they are expected to read the corresponding chapter in Green’s to be prepared.
The Ohio State University
Department of Orthopaedics

Residency Curriculum

Orthopaedic Infection
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  - At the beginning of the rotation
  - At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
Orthopaedic Infection Service Information

Jason Calhoun, MD  
Professor and Chairman  
Cell: 573-999-4831  
Office: 614-257-2058  
Jason.Calhoun@osumc.edu  
Office: Suite 1503, 1493 East Broad Street, Columbus, OH

Candice Burke, Administrative Assistant to Dr. Calhoun

Schedule

During the two month rotation, the PGY2 and PGY5 will spend two months with Dr. Calhoun.

Dr. Calhoun  
Monday: Clinic at UHE, beginning at  
Tuesday: OR at UHE, beginning at  
Wednesday:  
Thursday:  
Friday:
Delineation of Resident Responsibilities: Orthopaedic Infection Service: PGY2

I. Resident Responsibilities for Patient Care

Residents must be aware of all inpatients and consults on the orthopaedic service at Main with orthopaedic infections. Residents must attend all surgery on the Orthopaedic infection service. Residents must attend all clinics on the service. Residents must monitor C&S, and prescribe appropriate antibiotics for patients on the orthopaedic infection service.

II. Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

III. Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

The person ultimately responsible for the patient is the attending. The attending should be notified of any adverse change in a patient’s medical condition or vital signs, persistent pain that is not controlled with reasonable doses of analgesics, significant amounts of drainage from wounds, or of patients or patient’s family members that are upset about the care they are receiving. The threshold to inform the attending of problems should be very low.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

IV. Performance Feedback
Attending staff members on the foot and ankle service are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Delineation of Resident Responsibilities:
Orthopaedic Infection Service: PGY5

I. Resident Responsibilities for Patient Care

Residents must be aware of all inpatients and consults on the orthopaedic service at Main with orthopaedic infections. Residents must attend all surgery on the Orthopaedic infection service. Residents must attend all clinics on the service. Residents must monitor C&S, and prescribe appropriate antibiotics for patients on the orthopaedic infection service.

II. Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

PGY5 residents are expected to be able to instruct and assess the junior resident on the service.

III. Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

The person ultimately responsible for the patient is the attending. The attending should be notified of any adverse change in a patient’s medical condition or vital signs, persistent pain that is not controlled with reasonable doses of analgesics, significant amounts of drainage from wounds, or of patients or patient’s family members that are upset about the care they are receiving. **The threshold to inform the attending of problems should be very low.**

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.
IV. **Performance Feedback**

Attending staff members on the foot and ankle service are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Goals and Objectives
Musculoskeletal Infection – PGY2

I. Core Competency Areas

By the end of the PGY2 rotation in Musculoskeletal Infection, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice
1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

*By the end of the PGY2 rotation in Musculoskeletal Infection, the resident should:*

1. Know the basic science of musculoskeletal infections: epidemiology, microbiology, biofilms, biomaterials and bacterial adherence.
2. Know the basic science of antibiotic treatment: pharmacology, pharmacokinetics, local treatment, systemic treatment.
3. Know the classic clinical presentation of musculoskeletal infection and the staging systems used in clinical evaluation.
4. Know and apply clinically the appropriate diagnostic modalities, including laboratory evaluation and diagnostic imaging.
5. Know how to perform surgical debridement and lavage.
6. Know how to diagnose and treat infections in these specific situations: open fractures, prosthetic joints, bite wounds.
7. Know how to diagnose and treat adult osteomyelitis, septic arthritis, and mycobacterial/fungal infections.
8. Know the practical guidelines for minimizing surgical site infections.
9. Know how to diagnose and treat surgical site infections.

II. Specialty Specific Psychomotor Skills

*By the end of the PGY2 rotation in foot and ankle/infection, the resident should be able to:*

1. Be able to diagnose infected total joints
2. Perform aspiration of joints
3. Perform adjustment of external fixators
4. Irrigate and debride chronic osteomyelitis
5. Perform a below knee amputation
Goals and Objectives
Musculoskeletal Infection – PGY5

I. Core Competency Areas

By the end of the PGY2 rotation in Musculoskeletal Infection, the resident should demonstrate further progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice
1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY5 rotation in Musculoskeletal Infection, the resident should:

1. Know and teach the basic science of musculoskeletal infections: epidemiology, microbiology, biofilms, biomaterials and bacterial adherence.
2. Know and teach the basic science of antibiotic treatment: pharmacology, pharmacokinetics, local treatment, systemic treatment.
3. Know and teach the classic clinical presentation of musculoskeletal infection and the staging systems used in clinical evaluation.
4. Know, apply, and teach the appropriate diagnostic modalites, including laboratory evaluation and diagnostic imaging.
5. Know how to perform surgical debridement and lavage.
6. Teach junior residents to perform surgical debridement and lavage
7. Know how to diagnose and treat infections in these specific situations: open fractures, prosthetic joints, bite wounds.
8. Teach junior residents to diagnose and treat infections in open fractures, prosthetic joints, and bite wounds.
9. Know how to diagnose and treat adult osteomyelitis, septic arthritis, and mycobacterial/fungal infections.
10. Teach junior residents to diagnose and treat adult osteomyelitis, septic arthritis, and mycobacterial/fungal infections.
11. Know and teach the practical guidelines for minimizing surgical site infections.
12. Know how to diagnose and treat surgical site infections.

II. Specialty Specific Psychomotor Skills

By the end of the PGY52 rotation in Musculoskeletal Infection, the resident should be able to:

1. Be able to diagnose infected total joints
2. Perform aspiration of joints
3. Perform adjustment of external fixators
4. Irrigate and debride chronic osteomyelitis
5. Perform a below knee amputation
6. Teach junior residents to perform all of the above
7. Design external fixators
8. Make antibiotic beads
9. Perform an above knee amputation/disarticulation
4 Cardinal Signs of Inflammation:

- **Temperature:**
  - Manual comparison of temperature in the affected area to the temperature on the contralateral side or in nearby tissues

- **Pain:**
  - With palpation
  - Through a range of motion: infected joint – “pain with micromotion”
  - Axial loading
  - Cellulitis vs. septic arthritis: pain with light touch vs. pain with gentle motion

- **Swelling:**
  - Generalized bilateral lower extremity edema
  - Generalized unilateral edema
  - Circumferential edema around a joint

- **Erythema:**
  - Magnitude, location, and pattern
  - Blanching: increased local blood flow

**Other Local Clinical Signs:**

- **Joint effusion:**
  - Fluid-filled bursae vs. true joint effusion
  - Milking technique, fluid wave – evaluate a knee effusion

- **Drainage:**
  - Quantity and quality of the drainage
    - Purulent fluid: thick, heterogeneous, off-white in color
    - Serous fluid: thin, homogeneous,
  - Presence of a sinus

**Systemic Clinical Signs:**

- **Pulmonary system:**
  - Observation of coughing, difficulty breathing, mucus production, oxygen saturation

- **Urinary tract:**
Presence of any urinary symptoms
   o Urine should be analyzed for presence of infection

Gastrointestinal system:
   o Nausea, vomiting, diarrhea, constipation
   o Feces should be analyzed for presence of infection
   o *C. difficile colitis* in the setting of antibiotic use

Cardiovascular system:
   o Murmur
   o Local vasculitis or thrombosis

Special Tests:
   o “String sign” of a synovial fluid analysis

Physical Findings of Infection in a Pediatric Patient:
   o Temperature > 38.5° C
   o Refusal to walk, limp
   o Loss of normal spinal rhythm on forward bending
   o Rash
   o Pseudoparalysis
   o Erythema/warmth/swelling/tenderness near the ends of long bones
   o Joint effusion/synovitis
   o Limited joint ROM
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Department of Orthopaedics  
Orthopaedic Residency Program  

Surgical Competencies  
**Orthopaedic Infection Service: PGY2**  

*By the end of PGY2 rotation in foot & ankle/infection, the resident should be able to perform the following procedures:*  

1. Aspirate all major joints (hip, knee, ankle, shoulder, elbow, wrist)  
2. Perform bone biopsy for C&S  
3. Debride septic joints  
4. Manage antibiotic beads (PMMA and/or Vanc, Tibra)  
5. Perform a below knee amputation
Surgical Competencies
Orthopaedic Infection: PGY5

In addition to the surgical competencies indicated for the PGY2 rotation in foot & ankle/infection, by the end of PGY5 rotation in foot & ankle/infection, the resident should be able to perform the following procedures:

1. Perform an above knee amputation and a hip disarticulation
2. Perform I&D of ITJA
3. Perform an I&D of septic joints, both arthroscopically and open
4. To manage PMMA spacer of ITJA
5. To place wires and pins in Ilizarov fixation
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Orthopaedic Residency Program

Foot & Ankle/Infection Reading Lists – PGY2 and PGY5

OKU Musculoskeletal Infections, 1st Ed.

All Chapters
The Ohio State University
Department of Orthopaedics

Residency Curriculum

Adult Reconstruction
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  
  o At the beginning of the rotation
  o At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
The Ohio State University  
Department of Orthopaedics  
Orthopaedic Residency Program  

Adult Reconstruction (Joints) Service Information  

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Introduction  
The Ohio State University Arthroplasty Service is designed to provide Residents with a comprehensive education in clinical and research concepts related to arthroplasty of the hip and knee. Residents are assigned to one of two services: I: Dr. Andrew Glassman; II: Dr. Matthew Beal. Residents will rotate through each service for a one-month period. Knowledge of the items contained herein should be helpful in providing excellent care and fulfilling your educational goals. As required by the ACGME and the Residency Review Committee, core competencies and educational requirements will be clearly delineated. 

The educational goals are well defined and the surgical experience progressive. One of the goals is for the resident to attain a continuous working relationship with their assigned faculty. This facilitates a successful educational experience and allows the resident to participate in all aspects of patient care without an over-emphasis on service. 

At the completion of the rotation, there is a comprehensive evaluation that includes specific comments from Faculty. Mid-rotation, each Faculty member will discuss performance and skills in order to maximize the resident’s experience and education.  

Specific Resident Educational Goals  
PGY-2  

The resident should be comfortable with the history and physical exam of the hip and knee in the arthroplasty patient and the general indications for different surgical procedures. They should be able to recognize the usual post-op course of a "standard" joint arthroplasty procedure. In depth knowledge of surgical anatomy is important. They should be able to describe the usual surgical approaches and recognize common complications of these procedures. This level resident should learn methods of infection and DVT prophylaxis, and all aspects of peri-operative care including bladder management, indications for transfusion, and anti-coagulation techniques such as low molecular weight heparin and warfarin. A PGY-2 should be able to give a concise and accurate case presentation both in Morning Conference and while on Walk Rounds. This level Resident should understand the basics of X-Ray templating as part of planning for hip and knee replacement. Surgical skills should include proper positioning/draping, sterile technique, appropriate skin incisions, basic exposure methods, hemostasis, basic power saw and drill skills, drain management, and competent suturing techniques.
PGY-5 (Chief)

The Chief Resident should be able to perform primary joint arthroplasty and simple to complex revisions. He/She should be able to determine the surgical approach to be used and why it should be used and to start any case independently. The PGY-5 should understand the pathogenesis of prosthetic failure including loosening, osteolysis, wear, infections and peri-prosthetic fractures and understand the choice of components used as well as basic biomaterials. This level Resident should be able to teach the specifics and concepts of X-Ray templating. Specific surgical skills should include excellent competence in all aspects of cemented and cementless joint replacement, complex exposures including osteotomies, management of complex intra-operative situations including fractures, neurovascular injuries, and joint instability. The Chief Resident, in consultation with the Service Chief, is responsible all resident administrative activities on the Service.

One of the most important principles of the Arthroplasty Service is that residents should never expect to substantially participate in surgery without careful and prior knowledge of a specific patient’s history, disease, physical exam and preoperative planning. Residents should always read the prior dictated notes available. Because of the close working relationship between faculty and residents, there is ample time to review x-rays, history and preoperative planning in advance (several days). This interaction is one of the foundations of education in Arthroplasty and will be fostered.

Scheduled Conferences
All residents are required to attend the Arthroplasty Conferences. In addition, Residents must attend Grand Rounds and the Basic Science lectures.

Morning Teaching Conferences
Wednesday morning is our time dedicated to pre-operative planning and templating. On one other morning, generally Thursdays, an educational conference will be held with Dr Glassman, Dr Beal, or both. The conference will have one of various different formats. It may include a didactic presentation by Dr Glassman or Beal, focused upon a specific area of adult reconstructive surgery. At other meetings, 2-3 previously assigned journal articles will be discussed. The meeting may also be in the form of short presentations from the residents. The presentations are prepared with the assistance of attending staff. Usually we have a short computer slide presentation. Topics will rotate and include complications of total joint arthroplasty, biomechanics, osteolysis, loosening of components, peri-prosthetic fractures, avascular necrosis, developmental dysplasia of the hip, SCFE and alternatives to total joint arthroplasty including osteotomies of the hip and knee. These lectures should compliment the lectures given during Core conferences.

Patient Care
Residents at both the PGY-2 and PGY-5 levels will be responsible for the comprehensive management of all patients, under the direct supervision of the attending physician(s) and with the assistance of the Physicians Assistant(s).

- **The Clinic**
- **Rounds**
- **Orders**
- **Discharge**
- **Documentation**
- **Daily notes**
- **Operative dictation** (at the attending’s discretion)
- **Consults:**
- **H&P:**
- **Emergency Situations:** In the case of large thrombi or pulmonary emboli, baseline PT, INR, PTT values are obtained STAT and consult with attending.
If sponge or instrument count is in error, call attending immediately. DO NOT rely only on x-ray to clear the field.

In event of patient death, contact attending immediately. Always check code status on every patient pre-op.
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Department of Orthopaedics
Orthopaedic Residency Program

Delineation of Resident Responsibilities:
Adult Reconstruction (Joints) Service: PGY3

I. Resident Responsibilities for Patient Care

A. Office/ Clinic
   Resident may be asked to perform the initial patient evaluation of either established or new patients. This may include obtaining a complete history and physical with emphasis on the adult reconstructive issue(s) at hand. The resident will review available ancillary studies (radiographs, MRI’s, laboratory tests). The resident will synthesize this information and present the patient to the attending physician in a succinct fashion, offer a provisional diagnosis and relevant differential diagnosis, and formulate a plan for further evaluation and/or treatment. The resident will participate in patient education and be familiar with treatment alternatives, as well as their risks and benefits. The resident will document their historical and physical finding in the EMR. The resident may, from time to time, and with the attending’s approval, write prescriptions for medications or physical therapy. The resident will work in concert with the physician’s assistant where applicable, medical assistant(s) where applicable, and with the office staff. The resident will either assist in or actually perform minor office procedures such as suture/staple removal, joint aspiration/injection, minor wound debridement, and dressing changes.

B. Pre-operative planning conference
   The resident is expected to attend pre-operative planning conferences and to be prepared to discuss planned surgeries, the planned surgical approach, the implants to be utilized, and any other adjunctive procedures that may be anticipated. The resident will understand the indications and contraindications for various arthroplasty procedures. The resident will become proficient at pre-operative templating, using both hard copy radiographs and digital templating techniques. The resident will learn to assess implant fixation and degrees of bone stock damage when planning revision surgery. The resident will understand the implications of pertinent co-morbidities in pre-operative planning. The resident will be aware of the pre-operative patient’s social history and any special needs or requirement that may be anticipated at the time of discharge.

C. Surgery
   Whenever possible, the resident is expected to be present thirty minutes prior to the scheduled start time of any surgical procedure. If necessary, the patient’s history and physical as well as the pre-operative radiographs and the surgical plan will be discussed with the attending physician. The resident will introduce themselves to the patient if they have not already done so in clinic. The resident will explain that they will be participating in the operative procedure as well as in the patient’s post-operative care. The resident will be an active participant in the “time out” procedure. The resident will participate in and become proficient as positioning the patient, prepping, and draping. The resident will
demonstrate a thorough understanding of meticulous sterile technique and the measures necessary to minimize the risk of post-operative infection. The resident will, depending upon their level of training and the circumstances of the particular case, be prepared to perform certain portions of the operative procedure including the surgical exposure, the preparation of the bone, the removal of existing implant materials when necessary, implantation of the prostheses, and wound closure. The resident will demonstrate familiarity with a variety of surgical approaches to the hip and knee for primary, conversion, and revision arthroplasty, including their indications, technical details, advantages disadvantages, and potential complications. The resident will write post-operative orders.

D. Hospital rounds
The resident will, depending upon the circumstances and discussions with the attending physician, conduct daily post-operative rounds on all joint replacement patients, either in the accompaniment of the attending physician, the other resident(s), fellow, or students, or from time to time independently. The resident will document pertinent subjective and objective findings, including, but not limited to the patient’s level of pain and the effectiveness/ side effect of their post-operative pain management regimen, their vital signs, urine output, wound drainage, neurovascular status, and be able to clinically assess the patient for signs of thromboembolic disease. When appropriate, the resident will communicate and collaborate with the medical service following the patient. The resident will be familiar with the patient’s post-operative physical therapy protocol, including any restrictions. The resident will obtain and record daily laboratory and other test results. The resident will document their findings in the daily progress notes, discuss the findings with the attending physician and assist in formulating any changes in the patient’s treatment. Any proposed changes will be discussed with the attending physician prior to their implementation. The resident will assist in the formulation of a discharge plan with the attending physician, nursing, physical/ occupational therapy, case management, the patient, and their family. The resident will assist in the completion of the discharge documentation and prescription writing. From time to time, and depending upon the attending physician’s preference, the resident may be asked to dictate a discharge summary.

E. Education
The resident is expected to attend reading conferences and lectures prepared by the attending physician. From time to time, the resident may be asked to give a brief presentation regarding a particular topic relevant to adult reconstructive surgery. At the beginning of the rotation, the resident will identify an area of general interest and prepare a grand rounds quality presentation of 15-20 minutes duration to be presented to the attendings, residents, fellow, and medical students on the service. The resident will actively participate in the education of less senior residents, interns, and medical students.

II. Resident Level of Responsibility for Patient Care
Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge
and skills, and the complexity of the procedure.

III. Resident Supervision
Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.
Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

IV. Performance Feedback
Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Delineation of Resident Responsibilities:
Adult Reconstruction (Joints) Service: PGY5

I. Resident Responsibilities for Patient Care

A. Office/Clinic
Resident may be asked to perform the initial patient evaluation of either established or new patients. This may include obtaining a complete history and physical with emphasis on the adult reconstructive issue(s) at hand. The resident will review available ancillary studies (radiographs, MRI’s, laboratory tests). The resident will synthesize this information and present the patient to the attending physician in a succinct fashion, offer a provisional diagnosis and relevant differential diagnosis, and formulate a plan for further evaluation and/or treatment. The resident will participate in patient education and be familiar with treatment alternatives, as well as their risks and benefits. The resident will document their historical and physical finding in the EMR. The resident may, from time to time, and with the attending’s approval, write prescriptions for medications or physical therapy. The resident will work in concert with the physician’s assistant where applicable, medical assistant(s) where applicable, and with the office staff. The resident will either assist in or actually perform minor office procedures such as suture/staple removal, joint aspiration/injection, minor wound debridement, and dressing changes.

B. Pre-operative planning conference
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demonstrate a thorough understanding of meticulous sterile technique and the measures necessary to minimize the risk of post-operative infection. The resident will, depending upon their level of training and the circumstances of the particular case, be prepared to perform certain portions of the operative procedure including the surgical exposure, the preparation of the bone, the removal of existing implant materials when necessary, implantation of the prostheses, and wound closure. The resident will demonstrate familiarity with a variety of surgical approaches to the hip and knee for primary, conversion, and revision arthroplasty, including their indications, technical details, advantages disadvantages, and potential complications. The resident will write post-operative orders.

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II. Resident Level of Responsibility for Patient Care
Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attending’s assessment of the resident’s knowledge
and skills, and the complexity of the procedure.

III. Resident Supervision
Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

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IV. Performance Feedback
Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Goals and Objectives
Adult Reconstruction Rotation – PGY3

I. Core Competency Areas

By the end of the PGY3 rotation in Joints, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

- Ability to obtain a full history of the involved joint - Competency with the physical exam of the patient including specialized tests to evaluate for subtle hip and knee pathology.
- Ability to use appropriate terms during interpretation of basic x-ray findings found in arthritic joints.
- Mastery of the anatomy and approaches used for THA and TKA.
- Understanding of the basics of limb alignment for a well done total hip or knee arthroplasty as it affects the joint reaction forces.
- Recognition of the signs and symptoms of a periprosthetic infection.
- Mastery of basic surgical skills including soft tissue dissection, assessing for hemostasis, protection of critical structures as it relates to anatomy, and mastery of wound closure.
- Efficiency with the diagnosis and management of inpatient arthroplasty complications including infection, DVT, PE, and instability.

II. Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient that are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of healthcare professionals and be involved in care of the patient

III. Medical Knowledge

1. Demonstration of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice
4. Practice-Based Learning
   A. Assessment of ones own patient management skills and ability to make appropriate changes in practice
   B. Integration of evidence from scientific studies in the care of patient’s problems
   C. Demonstration of knowledge of study designs and statistical methods in order to evaluate
scientific studies
D. Usage of available information technology to obtain and manage information
E. Willingness to take time to educate students and other health care professionals

IV. Interpersonal Skills
1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

V. Professionalism
1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

VI. Systems-Based Practice
1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

VII. Specialty Specific Knowledge

By the end of the PGY2 rotation in Joints, the resident should:
1. Based on a careful history and physical exam, be able to propose a rational approach to the evaluation of patients with pain at various intervals after a total hip replacement.
2. Be able to differentiate the bursal and soft tissue diseases about the hip/knee and then outline a treatment plan during office sessions, clinic and rounds.
3. Be able to distinguish other diseases predisposing to arthritis (Paget’s Disease, AVN, Charcot arthropathy, ochronosis) - optional.
4. Be able to obtain an accurate history and perform a thorough physical exam on patients with an inflamed hip or knee. They will be able to generate differential diagnosis of this condition with the pertinent positives and negatives of these disorders: rheumatoid arthritis, septic arthritis, acute/chronic osteomyelitis, primary/post traumatic, osteoarthritis, gout, pseudogout, SLE, Reiter’s disease, ankylosing spondylitis, PVNS, hemophilia, osteonecrosis. Must be able to formulate a plan for the work-up of these patients including laboratory and radiographic evaluation.
5. Be able to explain preoperative planning of standard total hip/knee replacement.
6. Understand the general principles and surgical technique for the cemented/cementless femoral and acetabular components.
7. Understand the classification of acetabular and femoral deficiencies
8. Understand the classification of tibial and femoral deficiencies about the TKA
9. Based on a careful history and physical examination, the resident will be able to formulate an approach to the evaluation of patients with pain at various intervals after a total hip and knee replacement.
10. Be able to explain the rationale for implant selection (type, size, configuration) for primary and revision THA/TKA cases
11. Understand basic biomaterials issues in total joint arthroplasty. Discuss the following materials and their use in orthopaedic implants: Ceramics, polyethylene, metals, and methylmethacrylate.
12. Understand the perioperative considerations for THA and TKA including: Preoperative medical evaluation; blood conservation; DVT prophylaxis; and rehabilitation
13. Understand the principles of femoral and pelvic osteotomies and be able to draw accurate preoperative plans for the procedure
VIII. Specialty Specific Psychomotor Skills

By the end of the PGY2 rotation in Joints, the resident should be able to:

1. Remove complex hardware around the hip and knee
2. Evaluate the painful total hip arthroplasty
3. Summarize the indications for hip/knee arthrodesis and illustrate the techniques commonly used.
4. Describe the indications for a resection arthroplasty, and for synovectomy of the hip
Goals and Objectives
Adult Reconstruction Rotation – PGY5

I. Core Competency Areas

By the end of the PGY5 rotation in Joints, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

- Understanding of the relationship of the pathology of inflammatory arthritis as it relates to the history and physical exam findings.
- Understanding of the relationship of spine disease to hip and knee symptoms. - Mastery of templating of a primary THA or TKA.
- Basic understanding of implant selection for a case as it affects the reconstruction of a hip or knee
- Mastery of the basic biomechanics behind the designs of various hips and knees
- Identification of the potential problems involved with revision THA or TKA
- Basic templating and implant selection for a revision THA or TKA
- Proficiency with the steps involved in a primary THA or TKA case with attending supervision.
- Understanding of the management of bony defects found in revision THA or TKA

II. Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and execution of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

III. Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice
4. Practice-Based Learning
   A. Assessment of one’s own patient management skills and ability to make appropriate changes in practice
   B. Integration of evidence from scientific studies in the care of patient’s problems
   C. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
   D. Usage of available information technology to obtain and manage information
   E. Willingness to take time to educate students and other health care professionals

IV. Interpersonal Skills
1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

V. Professionalism
1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

VI. Systems-Based Practice
1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

VII. Specialty Specific Knowledge
Building upon the knowledge and skills acquired in the PGY2 Joint Replacement rotation, the resident at the end of the PGY5 rotation, should now be able to perform all of the Goals and Objectives for the both the PGY2 rotation, in addition to the following advanced Goals and Objectives:

1. Be able to organize a systematic evaluation of these disorders including radiographic, laboratory tests and appropriate ancillary studies. Based on information, the orthopaedic resident will be able to formulate a differential diagnosis and propose a treatment plan for these disorders: osteoarthritis (1st and 2nd), rheumatoid arthritis, seronegative arthritis (AS, Reiter’s, psoriatic, IB related), septic arthritis, osteomyelitis, PVNS, hemophilic arthropathy, osteonecrosis and Charcot arthropathy
2. Be able to explain the indications for knee fusion and be familiar with various methods of fusion.
3. Be able to distinguish non-suppurative joint infections (fungal, tuberculosis, viral) and to recognize less common forms of secondary osteoarthritis (post-septic, Paget’s Disease, hemochromatosis)
4. Be able to describe the diagnostic criteria for Reflex Sympathetic Dystrophy Syndrome and plan appropriate treatment for each stage of the disorder.
5. Understand bone remodeling and its implications about the THA (eg. calcar resorption - cementless stem ingrowth) and TKA
6. Understand the biologic response to wear debris and be able to differentiate these from bone response to implants (osteolysis vs resorption)
7. Understand the tribology (wear issues) associated with total joint arthroplasty
8. Understand the design rational for THA and TKA implants as pertains to common complications (PF groove, elevated lip liners, anatomic vs straight stems, etc)
9. Understand the biomechanics of a TKA and osteotomy about the knee.
10. Be able to describe the pathogenesis of implant loosening (osteolysis, membrane formation, enzyme elevation) at the cement-bone and metal-cement interfaces.
11. Be able to evaluate and propose treatment for patients with anterior knee pain.
12. Be able to discuss the principles and biomechanics of osteotomies about the hip/knee.
13. Understand preoperative planning for revision total hip arthroplasty
14. Know how to evaluate patients with painful THA’s and make appropriate judgments based on data obtained from ancillary studies. The Senior Resident will be expected to present the problem, analyze the data and select a plan of action for these patients at grand rounds conferences.
15. Have a thorough understanding of the design rational for THA and TKA implants
16. Have a thorough understanding of the use and indications of the primary cementless femoral component including: cementless femoral components (modular); cementless femoral component (extensively coated); hydroxyapatite coated implants; proximal fixation of the noncemented stem; and the tapered femoral component.
17. Know the early complications after THA/TKA and their management.
18. Know the late Complications after THA/TKA and their management.
19. Be able to evaluate patients with painful total joint arthroplasty and make appropriate judgments based on history, physical exam and ancillary studies. The Senior Resident will be expected to be able to present the problem, analyze the data, and select a plan of action for these patients at Quality Assurance Conferences.
20. Understand the treatment options for the infected THA/TKA including two-stage reconstruction.
21. Understand and be able to do parts of removal of failed hip and knee components and retained cement mantel
22. Understand the application of allografts for THA/TKA surgery
23. Thoroughly comprehend the principles of THA including: offset, leg length, range of motion, stability, and templating
24. Understand the principles, exposure and techniques of complex THA/TKA reconstructions
25. Understand the indications and techniques for the adjunct procedures used to treat AVN (eg. bone graft, vascularized bone graft).
26. Know the indications for, and the techniques of, soft tissue releases and neurectomy about the hip.
27. Know the principles and the application of using autografts and allografts for the defects associated with THA/TKA.
28. Thoroughly comprehend arthroplasty complications and be able to formulate an approach to the treatment (and prevention) of these problems.
29. Understand the management and surgical approach to periprosthetic fractures about THA and TKA.
30. Understand the techniques for the surgical treatment of osteolysis about the primary THA and TKA.
31. Be able to state the principles of osteotomy for medial and lateral compartment arthritis. Should be competent in planning these cases and demonstrate proficiency in performing distal femoral or upper tibial osteotomies.
32. Should understand the principles of amputation surgery (perform parts of amputations) about the pelvis and hip and understand the concept and technique of internal hemipelvectomy
VIII. Specialty Specific Psychomotor Skills

Building upon the knowledge and skills acquired in the PGY3 Joint Replacement rotation, the resident at the end of the PGY5 rotation, should now be able to perform all of the Goals and Objectives for the both the PGY3 rotation, in addition to the following advanced Goals and Objectives:

1. Preoperatively plan for a cemented or cementless THA/TKA, and be able to competently perform uncomplicated THA/TKA surgery.
2. Perform amputations about the knee pre and post arthroplasty.
3. Perform various parts of standard revision THA/TKA, complex THA/TKA, and revision of the septic THA/TKA procedures.
4. Perform femoral allografting (intercalary or interpositional).
5. Reduce a dislocated hip and should know how to manipulate a hip under anesthesia to determine the stable range of motion.
6. Formulate an operative and non-operative plan of action to address the unstable THA.
7. Perform a complicated synovectomy about the THA/TKA.
8. Plan and carry out a successful cemented, hybrid, and cementless standard primary THA.
9. Preoperatively plan for and competently perform complicated THA surgery including: THA in the posttraumatic patient; complex primary acetabular replacement; complex primary femoral replacement; and hip fractures treated by arthroplasty.
10. Preoperatively plan for and competently perform complicated TKA surgery including: RA, flexion contractures, varus or valgus deformities.
11. Perform soft tissue releases about the knee to correct severe varus/valgus deformities with TKA.
12. Have the surgical skill to balance the flexion and extension gaps during TKA.
13. Plan for revision THA/TKA (including 2 stage for sepsis) and should be able to perform parts of this surgery.
14. Plan for and perform parts of revision of the femoral THA component utilizing cemented, uncemented, and extensively coated modular implants with or without bulk allografts and struts or impaction grafting techniques.
15. Plan for and perform parts of revision of the acetabulum by cementless acetabular reconstruction, structural grafting, bone packing and using cement with all polyethylene components and acetabular cages.
16. Perform a complete synovectomy in the revision THA/TKA.
17. Plan the approach for excision of heterotopic bone and carry out the procedure.
18. Plan for a femoral or pelvic osteotomy and be able to understand the approach and technique of this surgery.
19. Perform most of a hip/knee fusion.
20. Have developed not only competence in amputation surgery about the knee but also be able to discuss the rationale for amputation at various levels and the prosthetic options for this level.
21. Have and select the optimal flap to deal with soft tissue problems (e.g. delayed healing, infection) after TKA.
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**Physical Exam Competencies**  
*Adult Reconstruction (Joints) Service: PGY3 and PGY5*

By the end of the PGY3 rotation on the Adult Reconstruction service, the resident should be able to demonstrate proficiency in the key physical exam tests. The PGY5 rotation is an opportunity to polish these physical examination skills.

- Normal examination of hip and knee, including: Gait assessment
- Inspection
- Palpation:
  - Bony prominences
  - Muscles
  - Bursa
- Range of motion: active vs. passive
- Strength/neurovascular testing
- Limb Length Assessment:
  - True vs. apparent LLD
  - Pelvic obliquity
- Trendelenburg Test (Single-Leg Stance)
- Trendelenburg gait pattern
- Log Roll (Passive Supine Rotation)
- Straight Leg Raise (w/ and w/out resistance)
- Ober Test
- Piriformis Test
- FABER Test
- Impingement Test (FADIR test)
- McCarthy Test
- Thomas Test
- Homan’s sign
Surgical Competencies
Adult Reconstruction (Joints) Service: PGY3

Core Surgical Competencies:

- Identification of bony landmarks for placement of incision
- Management of soft tissues/planes of dissection
- Understanding of limb alignment to adjust bone cuts
- Correct placement of bone cutting jigs for primary THA/TKA
- Safe use of saw/drill with respect to anatomy at risk
- Independent with repair of arthrotomy/skin closure/suturing
Surgical Competencies

Adult Reconstruction (Joints) Service: PGY5

Core Surgical Competencies:

- Independent with multiple approaches to the hip and knee
- Placement of bone cutting jigs with minimal attending intervention
- Understanding of the placement of revision instruments for bone cuts
- Proficient at placement of augments/cages/cemented components
- Proficient with techniques for extensile approaches to the hip and knee
- Basic understanding of advanced soft tissue management including muscle flaps, STSG, and complex wound closures.
Adult Reconstruction Reading Lists


Knee:
3. Berger RA, Crossett LS, Jacobs JJ, Rubash HE. Malrotation causing patellofemoral
4. Easley ME, Insall JN, Scuderi GR, Bullek DD. Primary constrained condylar knee
5. Dennis DA, Berry DJ, Engh G, Fehring T, MacDonald SJ, Rosenberg AG, Scuderi
6. Hofmann AA, Goldberg T, Tanner AM, Kurtin SM. Treatment of infected total
knee arthroplasty using an articulating spacer: 2- to 12-year experience. Clin
8. Ritter MA, Faris PM, Thong AE, Davis KE, Meding JB, Berend ME: Intra-
operative findings in varus osteoarthritis of the knee: An analysis of preoperative
alignment in potential candidates for unicompartmental arthroplasty. J Bone Joint

General:

Johanson NA, Lachiewicz PF, Lieberman JR, Lotke PA, Parvizi J, Pellegrini V, Stringer
TA, Tornetta P, Haralson RH, Watters WC. Prevention of Symptomatic Embolism in
Patients Undergoing Total Hip or Knee Arthroplasty. J. Am. Acad. Ortho. Surg., March
Pellegrini VD Jr, Donaldson CT, Farber DC, Lehman EB, Evarts CM: The John Charnley
Award: Prevention of readmission for venous thromboembolic disease after total hip
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  - At the beginning of the rotation
  - At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
The Ohio State University  
Department of Orthopaedics  
Orthopaedic Residency Program  

**Musculoskeletal Oncology Service Information**

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Schedule

During the two month rotation, both the PGY-2 and PGY-4 will spend one month each with Dr Mayerson and Dr Scharschmidt. They will switch attendings after the first month.

Dr Mayerson
Monday: OR, beginning at 7:00am
Tuesday: Indications conference at 6:15am in Ortho Library
        Clinic at the James, beginning at 8am
Wednesday: OR, beginning at 7:00am
Thursday: Pathology conference at 7:00am, Clinic at Moorehouse beginning at 9:00am
        Second Thursday will be clinic at Children’s in the am
Friday: Every other Friday will be OR at Children’s. The oncology resident is encouraged to assist when daily conferences are finished.

Dr Scharschmidt
Monday: Clinic at Martha Moorehouse Plaza, beginning at 9am
Tuesday: Indications conference at 6:15am in Ortho Library
        OR, beginning at 7:30am
Wednesday: Clinic at the James, beginning at 9:00 am
Thursday: Pathology conference at 7:00, followed by OR at the main in the am
        Fourth Thursday will be clinic at Children’s in the am
Friday: Every other Friday will be OR at Children’s. The oncology resident is encouraged to assist when daily conferences are finished.
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Delineation of Resident Responsibilities:
Orthopaedic Oncology Service: PGY2 and PGY4

I. Resident Responsibilities for Patient Care

- **Rounding**  Residents are expected to have seen and written a complete detailed
  note on each patient prior to going the OR or clinic for the day. Consult patients
  will be followed based on acuity to be decided upon discussion between the
  attending staff and resident. Attending rounds will be done daily at a time to be
  discussed between the resident and attending staff. Communication is mandatory
  with the inpatient and outpatient PCRM’s as needed. The P.A. will be used as
  needed to assist the resident staff with patient care.

- **Orders**  All orders will be done via the CAPI order entry system. There is a
  specific order set for the oncology service. Please use this set as it has been
  standardized for most of the post-operative needs for the oncology patients.

- **Preferences**  All dressings should be changed on POD 2 and daily thereafter
  unless otherwise specified. Drains are left in place and the patient kept on IV
  antibiotics until output is less then 30cc per 24 hour shift. Weight bearing status
  and physical therapy orders should be discussed on a case-by-case basis.

- **Discharge**  The standard OSU mechanism of electronic discharge instructions is
  to be used at all times. This should be a detailed account of the patient’s care so
  the primary care physician who receives a faxed copy upon the patient’s discharge
  will understand the plan of care. If you don’t know the detailed plan, please ask.
  DO NOT DISCHARGE a patient without reviewing all laboratory values and
  radiographic studies first!

The discharge summary should be done as close as possible to the discharge date.
This allows for easier recollection on the part of the resident for complicated
patients. The discharge summary must include a complete history, pertinent
physical exam, summary of care and reason for hospital admission. Use the EDI
for specific follow-up information. This is the only way that rehabilitation
hospitals sometimes are able to discern follow-up care.

Please try to have discharge orders written prior to 10 am whenever possible so
we can comply with the James Administrative Policy of completing all inpatient
discharges prior to noon.
In general most patients are seen post-operatively 10 to 14 days after surgery unless you are told otherwise. Pain medication is unique to each patient and should be discussed with the attending staff if you are unsure. Pain medications should be sufficient for 3-4 weeks.

- **Documentation** Please make sure daily notes are legible and the detailed care plan for the day is outlined. This will save you many phone calls and will allow the ancillary caregivers to provide better care for the patient as well. Check all laboratory values daily and document the abnormal labs that need addressed in the care of the patient.

Residents are responsible for a thorough pre-operative history and physical exam and as well as a brief OP note describing the procedure. Before the patient leaves the OR, a decision will be made on who will dictate the operative note. Any questions should be directed toward the attending staff.

All consults must document a COMPLETE history including a review of systems, past medical and surgical history, family history, allergies, medicines, and social history. Oncology patients are very complex and this is an important aspect of their evaluation. The attending staffing the consult must be documented and a specific plan generated after discussion with the attending staff.

Many other questions will arise on an as needed basis. Constant communication between all members of the team is the best way to get an optimal educational experience and provide the best care possible for each patient.

II. **Resident Level of Responsibility for Patient Care**

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

III. **Resident Supervision**

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.
IV. Performance Feedback

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Goals and Objectives
Musculoskeletal Oncology Rotation – PGY2

I. Core Competency Areas

By the end of the PGY2 rotation in Musculoskeletal Oncology, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of one’s own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY2 rotation in Musculoskeletal Oncology, the resident should:

1. Understand the natural history, cellular biology, diagnostic imaging modalities utilized in the evaluation, biopsy technique involved in diagnosis and surgical treatment, surgical options available for the palliative treatment of primary bone and soft tissue neoplasms, both benign and malignant.
2. Know the spectrum of benign and malignant neoplastic disease entities and tumor-like conditions encountered in musculoskeletal oncology
3. Know the important aspects of clinical diagnosis used in the evaluation of soft tissue and bone neoplasms
4. Understand the staging systems and the classification of surgical procedures utilized by musculoskeletal oncologists
5. Understand the management of surgical specimens and the approach to their interpretation through light microscopy, immunohistochemistry, and cytogenics.
6. Know the general principles for using adjuvant treatment modalities (radiation therapy and chemotherapy) and the surgical options available for palliative treatment of metastatic malignancies to includeing the evaluation and treatment of pending and overt pathologic fractures.
7. Understand the psychological aspects of patient management and the techniques for pain management in orthopaedic oncology patients.
8. Know the surgical options available for the palliative treatment of metastatic malignancies to bone including the evaluation and treatment of pending and overt pathologic fractures
9. Identify patient position, surgical approach, and pertinent anatomy for each tumor location
10. Know general surgical technique for bone and soft tissue resections and appropriate margin status
11. Design and implement the appropriate diagnostic approach to bone and soft tissue lesions from the initial office based clinical evaluation of the patient through a utilization of the entire spectrum of diagnostic modalities.
12. Synthesize clinical, radiographic, and pathologic diagnostic information into an appropriate differential diagnosis and a final definitive diagnosis for musculoskeletal lesions

III. Specialty Specific Psychomotor Skills

By the end of the PGY2 rotation in Musculoskeletal Oncology, the resident should be able to:

1. Assist in planning of fine needle aspiration, true-cut needle biopsy, and open surgical biopsy in the management of soft tissue sarcoma. Know how and when each method is optimally utilized.
2. Plan and assist in performing core needle biopsy of bone lesions with fluoroscopic control and open biopsies of both soft tissue and bone tumors in the operating room when appropriate to stage of training.
Goals and Objectives
Musculoskeletal Oncology Rotation: PGY4

I. Core Competency Areas

By the end of the PGY4 rotation in Musculoskeletal Oncology, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care
1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge
1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning
1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills
1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism
1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

Basic:
1. Understand the natural history, cellular biology, diagnostic imaging modalities utilized in the evaluation, biopsy technique involved in diagnosis and surgical treatment, surgical options available for the palliative treatment of primary bone and soft tissue neoplasms, both benign and malignant.
2. Know the spectrum of benign and malignant neoplastic disease entities and tumor-like conditions encountered in musculoskeletal oncology
3. Know the important aspects of clinical diagnosis used in the evaluation of soft tissue and bone neoplasms
4. Understand the staging systems and the classification of surgical procedures utilized by musculoskeletal oncologists
5. Understand the management of surgical specimens and the approach to their interpretation through light microscopy, immunohistochemistry, and cytogenics.
6. Know the general principles for using adjuvant treatment modalities (radiation therapy and chemotherapy) and the surgical options available for palliative treatment of metastatic malignancies to including the evaluation and treatment of pending and overt pathologic fractures.
7. Understand the psychological aspects of patient management and the techniques for pain management in orthopaedic oncology patients.
8. Know the surgical options available for the palliative treatment of metastatic malignancies to bone including the evaluation and treatment of pending and overt pathologic fractures
9. Identify patient position, surgical approach, and pertinent anatomy for each tumor location
10. Know general surgical technique for bone and soft tissue resections and appropriate margin status
11. Design and implement the appropriate diagnostic approach to bone and soft tissue lesions from the initial office based clinical evaluation of the patient through a utilization of the entire spectrum of diagnostic modalities.
12. Synthesize clinical, radiographic, and pathologic diagnostic information into an appropriate differential diagnosis and a final definitive diagnosis for musculoskeletal lesions

Advanced: By the end of the PGY4 rotation in Musculoskeletal Oncology and building upon the experiences from the PGY2 rotation, the resident should:

1. Know the reconstructive options for use following treatment of benign bone tumors (i.e. cementation, internal fixation, bone grafting, and the use of graft alternatives)
2. Know the reconstructive options used in the treatment of malignant bone tumors (i.e. allografting, autografting, arthrodesis, total joint arthroplasties, and composite arthroplasties).
3. Know the reconstructive options utilized following the treatment of malignant soft tissue tumors (i.e. split thickness skin grafting, local rotational flaps, and amputation.
4. Understand the advantages and disadvantages of limb salvage vs. amputation in the management of bone and soft tissue tumors

III. Specialty Specific Psychomotor Skills

Basic:
1. Assist in planning of fine needle aspiration, true-cut needle biopsy, and open surgical biopsy in the management of soft tissue sarcoma. Know how and when each method is optimally utilized.
2. Plan and assist in performing core needle biopsy of bone lesions with fluoroscopic control and open biopsies of both soft tissue and bone tumors in the operating room when appropriate to stage of training.

Advanced: By the end of the PGY4 rotation in Musculoskeletal Oncology and building upon the experiences from the PGY2 rotation, the resident should:

4. Design and implement the appropriate diagnostic approach to bone and soft tissue lesions from the initial office based clinical evaluation of the patient through a utilization of the entire spectrum of diagnostic modalities
5. Plan and perform optimal biopsy procedures utilizing core needle biopsy of soft tissue masses as an office based procedure.
6. Plan and perform core needle biopsy of bone lesions with fluoroscopic control and open biopsies of both soft tissue and bone tumors in the operating room.
7. Synthesize clinical, radiographic, and pathologic diagnostic information into an appropriate differential diagnosis and a final definitive diagnosis for musculoskeletal lesions.
8. Formulate a specific treatment plan for a wide spectrum of orthopaedic oncology conditions both benign and malignant involving bone and soft tissue tumors and tumor like conditions.
Physical Exam Competencies
Oncology Service: PGY2 and PGY4

By the end of the PGY2 rotation on the Orthopaedic Oncology service, the resident should be able to demonstrate proficiency in the key physical exam tests. The PGY4 rotation is an opportunity to polish these physical examination skills.

History:

- When did you first notice mass? How was it discovered?
- Where is the mass located?
- Is the mass getting bigger? Does it change in size?
- Is the mass painful? Aggravating/alleviating factors? Night pain?
- Systemic signs or symptoms?
- Personal or family history of malignancy?

Complete general examination: skin, heart, lungs, abdomen, lymph nodes

Examination of a mass:

- Size and location (superficial or deep)
- Nature of the mass (soft, firm, rocklike; soft tissue vs. bony origin)
- Freely mobile or fixed to the underlying tissues
- Tender to palpation
- Warmth

Special Tests:

- Tinel's sign
- Transillumination
Surgical Competencies
Oncology Rotation – PGY2 at OSU

- Open bone and soft tissue biopsies
- IM nail placement of femur
- Small soft tissue mass resections such as lipoma
- Excisions of small benign bone tumors such as osteochondroma
Surgical Competencies

Oncology Rotation – PGY4 at OSU

- IM nail placement of humerus
- Larger benign soft tissue mass resections
- Curettage and bone grafting of benign bone tumors
- Use of adjuvant therapies of benign bone tumors such as cementation and cryosurgery
Revised 6/10

The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

**Oncology Reading List – PGY2 and PGY4**

1) OKU musculoskeletal Tumors 2
2) Tumor Service Manual (handed out to residents at beginning of rotation. Also available in ortho library and on department website).
The Ohio State University
Department of Orthopaedics

Residency Curriculum

Pediatric Orthopaedics
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  - At the beginning of the rotation
  - At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
Service Guidelines  
Nationwide Children’s Hospital  
Pediatric Orthopaedic Rotation

The orthopaedic service at Nationwide Children’s Hospital is a very busy service with many obligations. Because of this we have, in the past, taken the view that the orthopaedic residents work as a team even though they are assigned to individual services. The object of this is to give the patient the care they need and in a timely manner.

**PRECEPTOR MODEL**

Our program uses the preceptor model of teaching. The resident is assigned to a pediatric orthopedist attending physician (preceptor) on a 1 month period throughout the rotation. During the rotation, the resident works in a close relationship with the preceptor and their respective practices in both the clinic and surgical setting. He/she is involved in clinical decision making for in-patient consults, out-patient evaluations and surgical decisions in tandem with his assigned preceptor. In the surgical setting, the fellow participates at a level deemed appropriate by his preceptor and in accordance with the hospital’s rules and regulations. In the clinical setting, the resident evaluates and treats patients under the direct supervision of the preceptor. In all settings, the Sr. residents are expected to teach and mentor rotating orthopedic residents, emergency medicine rotators, medical students and allied staff.

**ALL RESIDENTS**

1. First obligation is to their assigned preceptor. It is the residents duty to arrange coverage for their assigned service if unavailable for vacationing residents, post call, etc.
2. During the day the resident on call or one of the rotating ER residents or Orthopaedic interns on call will be the first primary call to the Emergency Room and the floor.

**ROTATING RESIDENT DUTIES**

During most months there will be an emergency medicine rotator on the service. They are to participate in all aspects of patient care. They are required to take primary call and assist in performing reductions in the emergency department. This will be under the direct supervision of the orthopaedic resident on call with them. They should be encouraged to scrub in on procedures if they are interested and if they are applicable to their specialty. Their first priority is clinic coverage.
Residents will be responsible to manage assigned patients during their hospital course. Patients are assigned according to the following:

1.) those patients for which the individual resident is present or assisted in the operation.
2.) those patients of the resident’s assigned preceptor which are uncovered in the OR by another resident (it is the staff’s responsibility to contact the resident on service).

Residents are asked to present their assigned patients on rounds with knowledge of vitals, appropriate labs and postoperative or daily treatment plan. The NP’s will still provide help with order and computer entry, progress notes, dressing changes and discharge planning, etc. It is the resident’s duty, however, to collect needed information and evaluation prior to rounds in order to have a daily plan.

All consults are to be evaluated by the on-call resident that day.

**GENERAL RULES**

1. You will be expected to come to work on the first day of your rotation and work on the last day of your rotation
2. No vacations on the first or last week of the rotation unless approved
3. Vacation schedules are to be worked out with your fellow residents and approved by Dr. Klingele. You must complete a vacation request form and get it signed by Dr. Klingele
4. Do not leave the hospital in the evening without first checking out with the resident on call
5. If multiple operative cases are running after 6:00pm residents are requested to stay and provide services
6. When you are the senior resident covering the PGY-1 or 2 residents there is to be no moonlighting by the senior resident
7. All residents are expected to attend Pediatric Orthopedic Grand Rounds monthly, weekly Reading Conference and X-Ray Conference
8. At completion of your rotation you must do Attending evaluations and the Overall Program Evaluation. Upon completion, your personal evaluation will be forwarded to your program Director when your final month’s duty hours have been received

**CALL DUTIES**

Residents will have 9 - 11 calls per month. The intern or ER rotator will not take primary ER call without direct supervision. The PGY1 or PGY2 Orthopaedic residents will have in-house back up overnight. If the sr. resident does not come in the hospital; time on call does not count against their duty hours.
PEDIATRIC ORTHOPAEDIC CLINIC

1. A note should be dictated for each patient, make sure that you send notes to the referring physicians.

ER PATIENTS

ER patients should be followed-up according to which staff is on call.

GRAND ROUNDS

Grand Rounds at Children’s is held on the 3rd Friday of each month except in the summer months of July and August. Every orthopedic resident should do at least one grand rounds presentation while completing their pediatric education. Audio visual requirements can be arranged through the resident coordinator or the AV team at x24945. Please do this at least two weeks in advance. Disclosure forms must be completed and given to the coordinator so CME credits can be arranged.

CONFERENCE SCHEDULE

Cases presented at x-ray conference are interesting cases from the clinic or surgery. Residents are encouraged to present at least one case each week. Wednesday morning Reading Conference is held at 6:00am – 7:00am with x-ray conference following immediately after from 7:00am – 8:00am. M/M conference is held every 8 weeks. Residents should submit their OR cases for the week prior at least two days before conference to the Academic Coordinator.

EMERGENCY DEPARTMENT

If you are called to see a patient in the ED and you believe the patient will need conscious sedation; it is necessary to speak with the nurse to coordinate ED care with regards to medications, supplies and x-rays.

The traction equipment is stored in 4A West in the Orthopaedic equipment room, which is locked. The nurses on the floor can unlock the room for you.

When you need a traction bed there should be one available on 4A West. Ask the charge nurse to have Transportation bring the bed to the ED. The nursing supervisor can be paged at 637-3759.

COMPARTMENT SYNDROME

On 4A West in the medication room is the Stryker apparatus for measuring compartment syndrome, it is locked in the narcotic cabinet. If you need help obtaining tools or equipment for casting in the ED, contact the cast technicians. Most supplies and tools are in the closet attached to rooms #33 and #34. Spica pantaloons are in the PYXIS. There is also a portable cast cart available in the ED if you need to work in rooms other than #32 and #33.
The portable C-arm machine is available in the ED. You will have an orientation on this equipment at the beginning of your rotation. The hospital safety officer mandates that we keep logs on the use of this machine. If not, the consequences could result in restricted use.

**AMMENITIES**

The call room is on the second floor of the resident area. It is marked on the door.

A gym membership is available for a small fee. The department secretary can put you in touch with the right people to sign up for membership.

There are two libraries at your disposal. Located on the third floor by the Academic offices is the Paul R. Miller library. It has most of the orthopaedic texts that you will need. The key to the library is located in the diskette tray on the secretary’s desk. The hospital library is on the second floor of the Education building. After hours your security badge should gain you entrance.

**PHONE NUMBER**

The call schedule will have the staff physician’s phone numbers as well as your fellow resident’s pager numbers.

<table>
<thead>
<tr>
<th>Location</th>
<th>Phone Number</th>
<th>Description</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>x24100</td>
<td>Emergency Room</td>
<td>x24333</td>
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<tr>
<td>Outpatient Surgery Center</td>
<td>x25200</td>
<td>Resident Coordinator</td>
<td>x23393</td>
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<tr>
<td>4A West</td>
<td>x24290</td>
<td>Orthopaedic Clinic</td>
<td>x25175</td>
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<tr>
<td>Admitting</td>
<td>x22210</td>
<td>Main Lab</td>
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<tr>
<td>Main Radiology</td>
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**EVALUATIONS**

Residents are evaluated via a 360° evaluation, Faculty evaluation and Monthly Service evaluation process that is used to measure core competencies set forth by the ACGME. An Interim evaluation is performed at 3 months for residents completing a consecutive 6 month rotation.

Additionally, residents will complete an “Overall Rotation” evaluation that encompasses their feedback/input on the rotation as a whole as well as faculty evaluations for each faculty member.

Revised 09/02/10tr
The Ohio State University  
Department of Orthopaedics  
Orthopaedic Residency Program  

Delineation of Resident Responsibilities:  
Pediatric Orthopaedics – PGY1

I. Resident Responsibilities for Patient Care

Resident will take 1st call with immediate supervision by Sr. Residents

Inpatient duties include ER assessment and management, admissions, daily notes
Clinic/outpatient responsibility

Resident is assigned to a staff preceptor to whom they will shadow in outpatient/inpatient and operating room locations

Residents will be expected to be prepared for clinic and OR

Thorough knowledge of the surgery, surgical approach and the reasoning, biomechanics, placement and technique of the surgical reconstructions/repair and implants used is expected.

Questions related to any case should be discussed with the attending prior to the case (preferably the day before)

Residents should see and exam the patient prior to surgery and are EXPECTED to have reviewed all the patient office notes and radiographic studies.

Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be
available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
I. Resident Responsibilities for Patient Care

Resident will take 1st call with backup from PGY 3/4 resident available
Inpatient and outpatient duties: includes care of post-op patient and those which have been admitted to Ortho Service, Inpatient consults

Resident is assigned to a staff preceptor to whom they will shadow in outpatient/inpatient and operating room locations

Residents will be expected to be prepared for clinic and OR

Thorough knowledge of the surgery, surgical approach and the reasoning, biomechanics, placement and technique of the surgical reconstructions/repair and implants used is expected.

Questions related to any case should be discussed with the attending prior to the case (preferably the day before)

Residents should see and exam the patient prior to surgery and are EXPECTED to have reviewed all the patient office notes and radiographic studies.

Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be
available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Delineation of Resident Responsibilities: Pediatric Orthopaedics – PGY3

I. Resident Responsibilities for Patient Care

Resident will take primary call and/or back up call to PGY1/2
Inpatient and outpatient duties: includes care of post-op patient and those which have been admitted to Ortho Service, Inpatient consults

Resident is assigned to a staff preceptor to whom they will shadow in outpatient/inpatient and operating room locations

Residents will be expected to be prepared for clinic and OR

Thorough knowledge of the surgery, surgical approach and the reasoning, biomechanics, placement and technique of the surgical reconstructions/repair and implants used is expected.

Questions related to any case should be discussed with the attending prior to the case (preferably the day before)

Residents should see and exam the patient prior to surgery and are EXPECTED to have reviewed all the patient office notes and radiographic studies.

Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be
available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Delineation of Resident Responsibilities:  
Pediatric Orthopaedics – PGY4

I.  Resident Responsibilities for Patient Care

Resident will take primary call and/or back up call to PGY1/2  
Inpatient and outpatient duties: includes care of post-op patient and those which have been admitted to Ortho Service, Inpatient consults

Resident will serve as a Mentor to PGY1,2 and 3 level residents while on ER Call, in the OR and in the clinic setting

Resident is assigned to a staff preceptor to whom they will shadow in outpatient/inpatient and operating room locations

Residents will be expected to be prepared for clinic and OR

Thorough knowledge of the surgery, surgical approach and the reasoning, biomechanics, placement and technique of the surgical reconstructions/repair and implants used is expected.

Questions related to any case should be discussed with the attending prior to the case (preferably the day before)

Residents should see and exam the patient prior to surgery and are EXPECTED to have reviewed all the patient office notes and radiographic studies.

Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.
Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
I. Resident Responsibilities for Patient Care

Resident will take primary call and/or back up call to PGY1/2
Inpatient and outpatient duties: includes care of post-op patient and those which
have been admitted to Ortho Service, Inpatient consults

Resident will serve as a Mentor to PGY1, 2, 3 and 4 level residents while on ER
Call, in the OR and in the clinic setting

Resident is assigned to a staff preceptor to whom they will shadow in
outpatient/inpatient and operating room locations

Residents will be expected to be prepared for clinic and OR

Thorough knowledge of the surgery, surgical approach and the reasoning,
biomechanics, placement and technique of the surgical reconstructions/repair and
implants used is expected.

Questions related to any case should be discussed with the attending prior to the
case (preferably the day before)

Residents should see and exam the patient prior to surgery and are EXPECTED to
have reviewed all the patient office notes and radiographic studies.

Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one
relationship with attendings. The level of responsibility given by the attending to
the resident is determined by that attending, depending on the attendings’
assessment of the resident’s knowledge and skills, and the complexity of the
procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic
and the operating room, as well as in on-call situations. Attending physicians are
available for consultation at all times.
Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
I. **Goals and Objectives**

A. Be proficient in the evaluation and management of acute and chronic pediatric orthopedic problems such as fractures/dislocations and accompanying neurovascular injuries, aseptic necrosis, arthritis, osteomyelitis, septic arthritis, neoplasia, scoliosis/kyphosis, cerebral palsy, myelomeningocele and various neuromuscular disorders, dysplasias, pediatric hip conditions, foot deformities including clubfoot and congenital vertical talus, length discrepancy, growth abnormalities, upper and lower limb deficiencies and deformity, pediatric and adolescent sports medicine, rotational and angular limb deformities.

B. Understand the pathophysiology, mechanisms of injury, and course and complications of the above disorders.

C. Be proficient in describing fractures, especially Salter-Harris type.

D. Learn the use of diagnostic imaging modalities available for the evaluation of orthopedic disorders.

E. Develop skill in the evaluation and management of musculoskeletal trauma.

II. **Skill Development**

A. Be proficient in techniques and understanding the indications for splinting and casting, reduction of fractures and dislocations, arthrocentesis, and compartment pressure monitoring.

B. Demonstrate the ability to correctly order and interpret x-rays on pediatric patients with orthopedic injuries.

C. Demonstrate the understanding of anatomy, the mechanism of injury, presentations, complications, management and prognosis of common musculoskeletal injuries in the pediatric age group.

D. Demonstrate knowledge of the differences in pediatric and adult skeletal anatomy and indicate how these differences are manifested in clinical and radiographic presentations.

E. Demonstrate the ability to provide regional anesthesia including hematoma blocks and nerve blocks.

III. **Educational Resources**

Residents have the opportunity to use textbooks in the Paul R. Miller orthopedic library, the Main Hospital library, Attendings offices and at the Orthopedic Center. Computers are provided in the orthopedic library and the resident call room with a generic sign on to access the internet for journals online. A dedicated server with a shared folder serves as a resource for articles, DVD’s, resident and attending lectures, etc.

IV. **Clinical Experience**

The rotation involves the care of pediatric orthopedic patients with a variety of conditions. The care of these patients will include an extensive clinic experience seeing a variety of orthopedic patients with conditions including, but not limited to hand injuries, sports medicine, Cerebral Palsy to general orthopedics. The residents will also take call and be the initial physician to see ED consultations. Residents will perform the initial evaluation and will then stabilize and treat the patients under the supervision of a senior orthopedic resident, orthopedic fellow or attending physician. The resident will perform a large number of fracture reductions and splint and cast applications.
V. **Didactic Experience**

The residents will attend 2 conferences per week. This includes a Reading Conference and X-ray Conference on Wednesday mornings from 6am - 8am (residents and attending physicians attend this conference) and Orthopedic Grand Rounds conference from 8 to 9 am on Fridays at OSU, Riverside or Children’s in the department of orthopedics. Pediatric lecture series is conducted the third Friday of the month 10 months per year. Pediatric fracture conference follows each Orthopedic Grand Rounds at Childrens.

VI. **Evaluation Process**

Residents are evaluated via a 360° evaluation, Faculty evaluation and Monthly Service evaluation process that is used to measure core competencies set forth by the ACGME. An Interim evaluation is performed at 3 months for residents completing a consecutive 6 month rotation.

Additionally, residents will complete an “Overall Rotation” evaluation that encompasses their feedback/input on the rotation as a whole as well as faculty evaluations for each faculty member.

________________________________________________
Kevin E. Klingele, MD
Director, Orthopedic Education and Clinical Research

________________________________________________
Resident signature

Rev.04/05/09
Goals and Objectives
Pediatric Orthopaedics Rotation – PGY2

I. Core Competency Areas

By the end of the PGY2 rotation in Pediatric Orthopaedics, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II Standard Objectives

1. Demonstrate proficiency in the evaluation and management of acute and chronic pediatric orthopedic problems such as fractures/dislocations and accompanying neurovascular injuries, septic arthritis, neoplasia, scoliosis/kyphosis, cerebral palsy, myelomeningocele and various neuromuscular disorders, dysplasias, pediatric hip conditions, foot deformities including clubfoot, leg length discrepancy, growth abnormalities, upper and lower limb deficiencies and deformity, pediatric and adolescent sports medicine, rotational and angular limb deformities.
2. Understand the pathophysiology, mechanisms of injury, and course and complications of the above disorders.
3. Proficiency in describing fractures, especially Salter-Harris type.
4. Learn the use of diagnostic imaging modalities available for the evaluation of pediatric orthopedic disorders.
5. Develop skill in the evaluation and management of musculoskeletal trauma.

III. Specialty Specific Knowledge

By the end of the PGY2 rotation in Pediatric Orthopaedics, the resident should:

1. Know the appropriate local anesthesia or conscious sedation for the safety and comfort of the pediatric patient during office orthopaedic procedures and emergency room procedures.
2. Understand the special elements of the initial and follow-up examination of the pediatric orthopaedic patient in the office or clinic setting, including working with families, the non-verbal child, the child with developmental disabilities, and adolescents.
3. Understand normal and abnormal growth and development, including embryology, osseous growth, muscular growth, growth rate, developmental milestones, and timing, especially secondary sexual characteristics
4. Introduction of skeletal dysplasias including defects of tubular bone (achondroplasia, MED, SED), disorganized cartilage and/or fibrous components (Ollier’s), and local or regional malformations of bone
5. Understand the characteristics, pathogenesis, diagnostic features, and management of constitutional diseases with bone pathology (rickets, mucopolysacchar, Ca/Phosphorous disorders), metabolic (rickets, osetomal, renal osteodysplasia, parathyroid, thyroid, heavy metal, juvenile osteoporosis, hypervitamin, scurvy, infectious hyperostos), connective tissues (Ehlers Danlos, Marfan’s, Down’s), and short stature
6. Understand the etiology, diagnosis, and treatment of hematologic disorders (Gaucher’s hemoglobinopathies, hemophilia) neoplasia (cysts, fibrous cort, EG), chondroblastoma, giant cell tumor, Ewing’s, osteosarcoma, fibrous dysplasia, soft tissue sarcoma.
7. Understand the characteristics, pathogenesis, diagnostic features, and management of muscular dystrophies (Duchenne, Becker, limb Girdle, FSH, cong dyst, hypotonic, myotonic, cong myopathy), inflammatory myopathies (polio, SMA, HMSNs), myelodysplasia, spondyloarthopathies, cervical spine (cong malform, hypermobility), and spinal deformities (scoliosis, kyphosis, spondylosis, and spondylolisthesis.)
8. Understand underlying processes with upper limb (deficiencies and malformations), hip (DDH, coxa vara, SCFE, synovitis, Legg Perthes, chondrolysis), leg length discrepancies, lower limb (congenital deficiencies, cong pseudoarth, posteromedial bow, congenital disli/sub, clubfoot, cong vert talus, postural deformations, polydactyly)
10. Assess and understand various causes, physical exam findings, prescribe medication, and natural history of rotational and angular deformities in the pediatric patient.
11. Comfortable in assessment and treatment of pediatric trauma patient including:
    Appropriate management of pediatric fractures including splinting, casting, and reduction techniques.
IV. Specialty Specific Psychomotor Skills

By the end of the PGY2 rotation in Pediatric Orthopaedics, the resident should be able to:

1. Interpret and synthesize patient history, clinical exam, and diagnostic tests into a differential diagnosis for the conditions listed above.
2. Interpretation of various laboratory, radiologic, and other diagnostic tests for the conditions listed above.
3. Plan appropriate surgery based upon the diagnosis and clinical findings.
4. Perform or assist in surgical procedures required to address the conditions listed above (i.e. scoliosis surgery, limb length problems, tumors, fracture care, neuromuscular disease, cerebral palsy, myelomeningocele, developmental deformities, DDH, Legg Perthes disease, congenital anomalies).
Goals and Objectives
Pediatric Orthopaedics Rotation – PGY4 and PGY5

I. Core Competency Areas

By the end of the PGY4 rotation in Pediatric Orthopaedics, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Standard Goals

1. Demonstrate proficiency in the evaluation and management of acute and chronic pediatric orthopedic problems such as fractures/dislocations and accompanying neurovascular injuries, osteomyelitis, septic arthritis, neoplasia, scoliosis/kyphosis, cerebral palsy, myelomeningocele and various neuromuscular disorders, dysplasias, pediatric hip conditions, foot deformities including clubfoot, leg length discrepancy, growth abnormalities, upper and lower limb deficiencies and deformity, pediatric and adolescent sports medicine, rotational and angular limb deformities.
2. Understand the pathophysiology, mechanisms of injury, and course and complications of the above disorders.
3. Proficiency in describing fractures, especially Salter-Harris type.
4. Learn the use of diagnostic imaging modalities available for the evaluation of pediatric orthopedic disorders.
5. Develop skill in the evaluation and management of musculoskeletal trauma.

III. Specialty Specific Knowledge

By the end of the PGY4 and PGY5 rotation in Pediatric Orthopaedics and building upon the experiences from the PGY2 rotation, the resident should:

1. Understand, recognize, and manage complex skeletal dysplasias and spinal disorders
2. Understand the etiology, diagnosis and treatment of complex hematologic disorders
3. Understand the characteristics, pathogenesis, diagnostic features, and management of complex neuromuscular disorders.
4. Recognize and treat, in conjunction with a multidisciplinary team, cerebral palsy, juveniles rheumatoid arthritis, and complex spinal deformities
5. Understand, recognize, and non-operatively and operatively manage complex upper limb, leg length, hip, and lower limb deformities and disorders
6. Understand the clinical manifestations, treatment, and long-term prognosis of complex gait disorder and fractures
7. Have the ability to assess various pediatric and adolescent sports related injuries, acute injury and overuse injury.

III. Specialty Specific Psychomotor Skills

At the end of the PGY4 and PGY5 rotation, the resident should assume progressively more responsibility for care of increasingly complex patients under the supervision of the attending physician, for teaching residents, and for ongoing follow-up and communication with patients and their families and should be able to:

1. Interpret and synthesize patient history, clinical exam, and diagnostic tests into a differential diagnosis for the conditions listed above
2. Know the indications for an interpretation of various laboratory, radiologic, and other diagnostic tests for the conditions listed above.
3. Plan appropriate surgery based upon the diagnosis and clinical findings
4. Perform or assist in surgical procedures required to address the conditions listed above (i.e. scoliosis surgery, limb length problems, tumors, fracture care, neuromuscular disease, cerebral palsy, myelomeningocele, developmental deformities, DDH, Legg Perthes disease, congenital anomalies
Physical Exam Competencies
Pediatric Orthopaedics Rotation

By the end of the PGY2 rotation on the Pediatric Orthopaedic service, the resident should be able to demonstrate proficiency in the key physical exam tests. The PGY3,4 and 5 rotation is an opportunity to polish these physical examination skills.

Developmental Assessment:
- Major developmental milestones and the ages they are reached

Primitive reflexes: significance and the age when they typically disappear
- Moro
- Asymmetric tonic neck (fencing position)
- Extensor thrust
- Neck righting reflex

Postural/Protective reflexes:
- Parachute
- Foot placement reaction

Infant hip examination:
- Ortolani maneuver
- Barlow maneuver
- Hip abduction/adduction
- Telescoping (increased/asymmetrical thigh folds)
- Galeazzi sign

Rotational profile:
- Foot progression angle
- Hip internal/external rotation
  - “W” position
  - “squinting” patellas
- Thigh-foot angle
- Bimalleolar angle
- Foot examination:
  - Metatarsus adductus
  - Clubfoot/rocker bottom foot/cavovarus foot
  - Pes planus/peroneal spastic flatfoot
  - Skew foot
  - Heel-bisector line

Coronal limb assessment:
- Genu varum:
  - Intercondylar distance
  - Lateral thrust
- Genu valgum:
  - Intermalleolar distance

**Range of motion assessment/contracture testing:**
- Thomas test
- Staheli test
- Ely test (prone rectus stretch test)
- Anterior popliteal angle:
  - Hamstings tightness vs. posterior capsular contracture of the knee
- Silverskiold test
- Ober test

**Scoliosis:**
- Adam’s forward-bending test
- Romberg sign
- Abdominal reflexes
- Plumb line
- Limb length discrepancy/pelvic obliquity:
  - Block assessment
  - ASIS-to-medial malleolus distance

**Cavovarus foot:**
- Coleman block testing

**Adolescent knee injuries:**
- Measurement of Q angle
- Patellar tilt and apprehension tests
- J-sign
- Wilson test
- Lachman’s test
- Anterior and posterior drawer tests
- Pivot shift test/Reverse pivot shift test
- McMurray’s test
- Varus/valgus stress testing
- Posterior sag/Quadriceps active test
- Discoid meniscus

**Other tests:**
- Lead-pipe vs. cogwheel rigidity
- Flexible vs. rigid flatfeet: toe-raise test
□ Assessment of generalized ligamentous laxity
□ Hip impingement test
□ SCFE findings: obligatory external rotation with hip flexion
□ Snapping hip assessment: IT band vs. iliopsoas
□ Trendelenberg sign/lurch
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Surgical Competencies:
Pediatric Orthopaedics – PGY 1,2,5, 5

Identification and understanding of various surgical approaches to upper extremity/lower extremity, spine, hip and pelvis

Understanding of physeal locations and avoidance of physeal injury

General and basic arthroscopy skills within knee and shoulder

Understanding of various surgical implants unique to growing, pediatric patients

Proficient in techniques for reductions of fracture/dislocations, arthrocentesis and compartment pressure monitoring

Independent (for PGY 2+) skin closure and suturing

Demonstrate ability to provide regional anesthesia including hematoma blocks and nerve blocks

Adequate preoperative planning and preparation

Adequate postoperative management
The Ohio State University
Department of Orthopaedics

Residency Curriculum

General
Orthopaedics/Prison
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  - At the beginning of the rotation
  - At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
General Orthopaedics and Prison Service Information – OSU

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Schedule

Dr. Granger

Monday: OR at OSU Main beginning at 7:30 AM. Typically outpatient cases on inmates such as knee arthroscopy or hardware removal. Clinic at Morehouse beginning at 12:15 PM.
Tuesday: OR at OSU Main beginning at 7:30 AM. Our big day of the week for prisoners or for non-inmate cases which require the special services of OSUH. Dr. Granger typically staffs total joint cases. Sometimes there are inmate Sports cases with Jones or Flanigan.
Wednesday: OR at OSU East beginning at 7 AM for non-inmate general orthopedic cases.
Thursday: CMC clinic begins at 7:15 AM. Dr. Granger rounds on the inpatient ward with the junior resident or a mid-level (if available) while the senior resident supervises the clinic. The clinic should end by 3 PM to avoid expensive overtime for the CO's. We then return to the Morehouse building to complete our surgery applications and to have one hour or more of didactic teaching. This includes review of indications for the patients signed up for surgery that day as well as those for the coming week. The senior resident should assign readings for all members of the service based on these upcoming cases.
Friday: the mornings are free for the scheduled teaching conferences. One Friday a month Dr. Bishop has OR time starting late morning. Clinic at Morehouse beginning at 12:15 PM.
A general orthopaedic service is a compilation of the orthopaedic subspecialties and when a particular problem requires particular expertise a subspecialist is consulted for assistance and if necessary performance of surgery. Otherwise the general orthopaedist manages all problems in his purview. A good general orthopaedist recognizes his limitations however few or many they may be.

The Prison Service is quite clearly a general orthopaedic service and provides a diversity of orthopaedic problems many of which are otherwise seen only in the orthopaedic textbook. The problems in this population include intense athletic competition, the need for survival and self protection, the lack of pre-incarceration treatment for musculoskeletal problems because of socio-economic deprivation, and the failure to identify acute problems until they become chronic. The prison population includes all ages and both sexes which mirrors the outside population in general.

In 1987 the Ohio State University Medical Center agreed to provide medical care for the state penal population. This population now includes 50,000 individuals more or less and is housed in 24 prison institutions throughout the state. Each institution has a full time physician and many have contractual arrangements with a podiatrist. The overseer of this system is the Ohio Department of Rehabilitation and Correction (ODRC). For decorum the population consists of inmates (not prisoners) and their caretakers are Correctional Officers (CO’s, not guards). The contract between OSU and ODRC provides invaluable training experience for our orthopaedic resident inmates.

On Thursday of each week inmates are brought by bus from all over the state to the Corrections Medical Center (CMC) on Columbus’ south side off Frank Road. Typically there are from 50 to 90 individuals in this general orthopaedic clinic for initial evaluation, follow-up treatment, and post operative care. The clinic is not popular with the inmates. The Corrections Medical Center is a maximum security facility. Attendance at the clinic means a 4 a.m. wake-up, all day in handcuffs and shackles, close quarter cells and busses. Generally the inmates need and/or want to be there for medical reasons. Overseeing the clinic is a senior resident and an attending. Elective surgery for inmates is on Monday morning and Tuesday.

Each physician-patient (inmate) encounter is in the form of a consultation. No orders are written. When signing an inmate for surgery please be accurate and consistent about the site of surgery and include a copy of the imaging that supports the diagnosis. This matter has caused more problems in the past than you can imagine. Your printed name beneath your signature-flourish may prevent hours of agony. Applications for surgery should be completed at the CMC or the Morehouse clinic by the end of the day. They should include an ICD-9 and CPT code for the procedure as well as designation of the attending or group of attendings to supervise the case. Any special equipment needs should be noted. There is a convenient form for this. Most elective cases which you sign-up will be done by residents who subsequently rotate on the service so it is important to be clear about the surgical indication in the procedure that is planned.

Medical liability is an issue between an inmate and the state. You personally are at no risk. The inmate population is generally interesting and challenging. You will have an opportunity to practice your skills and probably find some of your deficiencies and maybe even some talents.

In addition to the ODRC inmates the service has responsibility for non-inmate general orthopedic cases in the outpatient clinic at the Morehouse building and at OSU Main and East hospitals. We see common musculoskeletal conditions in OSU employees and retirees as well as referral cases
from around the state. Recently this has included a high-volume of primary and revision total joint replacement. The chief resident is responsible for ensuring staffing of the clinic and supervising the junior resident and medical students. It is a chance for him or her to do a large volume and wide variety of cases approximating entry into post-residency practice. It is also an opportunity to exhibit the practice management skills he or she will need on the outside by skillfully managing personnel, OR time and equipment.
I. Resident Responsibilities for Patient Care

Rounding  Residents are expected to have seen and written a complete and detailed note on each patient prior to going to OR. Consultation patients should be seen as soon as possible and should be seen in person with attending staff within 24 hours. After that they will be followed based on acuity to be decided upon after discussion between the attending staff in the resident. Attending rounds will be done daily and a time to be discussed between residents and attending staff.

II. Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

III. Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

III. Performance Feedback

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation. An operative note dictation will be reviewed.
Goals and Objectives
General Orthopaedics/Prison Rotation – PGY2

I. Core Competency Areas

By the end of the PGY2 rotation in General Orthopedics, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice
1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY2 rotation in General Orthopaedics, the resident should:

1. Know the appropriate local anesthesia or conscious sedation for the safety and comfort of the patient during emergency room orthopaedic procedures.
2. Understand the necessary elements of the examination of the orthopaedic patient in the office or clinic setting, including the elicitation of an appropriate history, physical examination techniques, imaging studies, and necessary laboratory studies.
3. Understand the treatment options available to the patient based on pertinent findings of the patient assessment.
4. Understand the short and long term outpatient follow-up for patients as appropriate to their conditions.
5. Understand the limits of his or her own knowledge, of the available facilities in managing orthopaedic patients, and arrange consultation with more experienced or specialized personnel and appropriate facilities as needed.

II. Specialty Specific Psychomotor Skills

By the end of the PGY2 rotation in General Orthopaedics, the resident should be able to:

1. Demonstrate the ability to effectively manage the responsibilities of call duty.
2. Demonstrate the assessment and management of orthopaedic injuries and illnesses commonly encountered in the emergency room, including appropriate physical and imaging examinations, recognition of important features of the condition, and the appropriate type of procedure required for initial treatment.
3. Demonstrate the manual techniques for initial management of commonly encountered orthopaedic and hand problems in the emergency room (i.e. reduction of fractures and dislocations, treatment of lacerations involving joint or tendon, examination of soft tissue injuries of joint or muscle, and aspiration of joint or fluid collection.
4. Demonstrate appropriate immobilization and dressing techniques for commonly encountered orthopaedic problems.
5. Evaluate emergency room patients and effectively triage patients having injuries of illnesses that are considered to be orthopaedic emergencies (i.e. acute or imminent septic disease, infections, open fractures, compartment syndrome, etc.)
6. Demonstrate physical examination techniques appropriate to the patient’s chief complaint and history, and arrange further studies as needed.
7. Perform a basic interpretation of imaging and laboratory study findings in the context of the patient’s history and examination.
8. Demonstrate the appropriate pre-operative work-up of orthopaedic patients, including the appropriate problem-focused orthopaedic physical examination, functional assessment, and imaging studies.
9. Perform an appropriate screening pre-operative history and physical examination, and refer for further studies as needed for pre-operative clearance for the procedure in question.
10. Participate in the definitive management, including surgical intervention when appropriate, of conditions commonly encountered by the general orthopaedist (i.e. traumatic injuries of the spine and extremities, arthritic conditions involving the spine and extremities, orthopaedic infections, acute and chronic athletic injuries involving bone, muscle, ligament, and tendons).
11. Evaluate and determine appropriate interventions for the orthopaedic and post-operative issues that arise in the care of post-operative patients (i.e. pain control, bleeding and drainage, fevers, traction and post-operative stabilization)
12. Recommend and arrange as necessary, appropriate post-operative of post-procedure care, including pain control, activity status including immobilization and/or therapeutic exercise, wound management and appropriate nursing or custodial care for orthopaedic patients upon discharge.
Goals and Objectives
General Orthopaedics/Prison Rotation – PGY5

I. Core Competency Areas

By the end of the PGY5 rotation in General Orthopaedics, the resident should demonstrate excellence in each of the following core competency areas.

Patient Care
1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge
1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning
1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills
1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism
1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

Basic:

1. Know the appropriate local anesthesia or conscious sedation for the safety and comfort of the patient during emergency room orthopaedic procedures.
2. Understand the necessary elements of the examination of the orthopaedic patient in the office or clinic setting, including the elicitation of an appropriate history, physical examination techniques, imaging studies, and necessary laboratory studies.
3. Understand the treatment options available to the patient based on pertinent findings of the patient assessment.
4. Understand the short and long term outpatient follow-up for patients as appropriate to their conditions.
5. Understand the limits of his or her own knowledge, of the available facilities in managing orthopaedic patients, and arrange consultation with more experienced or specialized personnel and appropriate facilities as needed.

Advanced: By the end of the PGY5 rotation in General Orthopaedics and building upon the experiences from the PGY2 rotation, the resident should:

6. Know the appropriate local anesthesia or conscious sedation for the safety and comfort of the patient during emergency room orthopaedic procedures.
7. Understand the necessary elements of the examination of the orthopaedic patient in the office or clinic setting, including the elicitation of an appropriate history, physical examination techniques, imaging studies, and necessary laboratory studies.
8. Understand the treatment options (operative and non-operative, where appropriate) available to the patient based on pertinent findings of the patient assessment and be able to explain the pros and cons of the options to the patients and family, and recommend appropriate care of the patient’s condition.
9. Understand the short and long term outpatient follow-up for patients as appropriate to their conditions.
10. Understand the limits of his or her own knowledge, of the available facilities in managing orthopaedic patients, and arrange consultation with more experienced or specialized personnel and appropriate facilities as needed.

III. Specialty Specific Psychomotor Skills

Basic:

1. Demonstrate the ability to effectively manage the responsibilities of call duty.
2. Demonstrate the assessment and management of orthopaedic injuries and illnesses commonly encountered in the emergency room, including appropriate physical and imaging examinations, recognition of important features of the condition, and the appropriate type of procedure required for initial treatment.
3. Demonstrate the manual techniques for initial management of commonly encountered orthopaedic and hand problems in the emergency room (i.e. reduction of fractures and dislocations, treatment of lacerations involving joint or tendon, examination of soft tissue injuries of joint or muscle, and aspiration of joint or fluid collection.
4. Demonstrate appropriate immobilization and dressing techniques for commonly encountered orthopaedic problems.
5. Evaluate emergency room patients and effectively triage patients having injuries of illnesses that are considered to be orthopaedic emergencies (i.e. acute or imminent septic disease, infections, open fractures, compartment syndrome, etc.)
6. Demonstrate physical examination techniques appropriate to the patient’s chief complaint and history, and arrange further studies as needed.

7. Perform a basic interpretation of imaging and laboratory study findings in the context of the patient’s history and examination.

8. Demonstrate the appropriate pre-operative work-up of orthopaedic patients, including the appropriate problem-focussed orthopaedic physical examination, functional assessment, and imaging studies.

9. Perform an appropriate screening pre-operative history and physical examination, and refer for further studies as needed for pre-operative clearance for the procedure in question.

10. Participate in the definitive management, including surgical intervention when appropriate, of conditions commonly encountered by the general orthopaedist (i.e. traumatic injuries of the spine and extremities, arthritic conditions involving the spine and extremities, orthopaedic infections, acute and chronic athletic injuries involving bone, muscle, ligament, and tendons).

11. Evaluate and determine appropriate interventions for the orthopaedic and post-operative issues that arise in the care of post-operative patients (i.e. pain control, bleeding and drainage, fevers, traction and post operative stabilization)

12. Recommend and arrange as necessary, appropriate post-operative post-procedure care, including pain control, activity status including immobilization and/or therapeutic exercise, wound management and appropriate nursing or custodial care for orthopaedic patients upon discharge.

Advanced: By the end of the PGY5 rotation in General Orthopaedics and building upon the experiences from the PGY2 rotation, the resident should be able to:

13. Instruct and supervise the junior residents in the performance of the goals and objectives of the junior residents.

14. Instruct and supervise the junior residents in the appropriate techniques for general orthopaedic procedures.

15. Demonstrate the ability to effectively manage the responsibilities of call duty, including supervision and instruction of the junior residents.

16. Demonstrate the assessment and management of orthopaedic injuries and illnesses commonly encountered in the emergency room, including appropriate physical and imaging examinations, recognition of important features of the condition, and the appropriate type of procedure required for initial treatment.

17. Demonstrate the manual techniques for initial management of commonly encountered orthopaedic and hand problems in the emergency room (i.e. reduction of fractures and dislocations, treatment of lacerations involving joint or tendon, examination of soft tissue injuries of joint or muscle, and aspiration of joint or fluid collection.

18. Demonstrate appropriate immobilization and dressing techniques for commonly encountered orthopaedic problems.

19. Instruct and consult on the evaluation of emergency room patients and oversee the effective triage patients having injuries of illnesses that are considered to be orthopaedic emergencies (i.e. acute or imminent septic disease, infections, open fractures, compartment syndrome, etc.)

20. Demonstrate physical examination techniques appropriate to the patient’s chief complaint and history, and arrange further studies as needed.

21. Perform a basic interpretation of imaging and laboratory study findings in the context of the patient’s history and examination.

22. Demonstrate the appropriate pre-operative work-up of orthopaedic patients, including the appropriate problem-focussed orthopaedic physical examination, functional assessment, and imaging studies.

23. Perform an appropriate screening pre-operative history and physical examination, and refer for further studies as needed for pre-operative clearance for the procedure in question.

24. Participate in the definitive management, including surgical intervention when appropriate, of conditions commonly encountered by the general orthopaedist (i.e. traumatic injuries of the spine and extremities, arthritic conditions involving the spine and extremities, orthopaedic infections, acute and chronic athletic injuries involving bone, muscle, ligament, and tendons).

25. Evaluate and determine appropriate interventions for the orthopaedic and post-operative issues that arise in the care of post-operative patients (i.e. pain control, bleeding and drainage, fevers, traction and post operative stabilization)
26. Recommend and arrange as necessary, appropriate post-operative of post-procedure care, including pain control, activity status including immobilization and/or therapeutic exercise, wound management and appropriate nursing or custodial care for orthopaedic patients upon discharge.
The Ohio State University  
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Surgical Competencies  
General Orthopaedics/Prison Service: PGY2 and PGY5 at OSU  

By the end of the PGY2 rotation in General Orthopaedics/Prison, the resident should be able to perform the following procedures:

Core Surgical competencies:

Knee Arthroscopy  
- setup and positioning  
- standard portals and diagnostic exam  
- meniscectomy, removal of loose bodies, chondroplasty and microfracture. ACL reconstruction with hamstring allograft or autograft

Shoulder Arthroscopy  
- setup and positioning  
- standard portals and diagnostic exam  
- subacromial decompression  
- rotator cuff mobilization and repair  
- arthroscopic Bankhart repair

Hardware Removal  
- positioning and fluoroscopic visualization  
- techniques and pitfalls in surgical exposure  
- removal of broken screws

Lower Extremity Tendon Ruptures  
- quadriceps repair, acute or V-Y plasty  
- patellar tendon repair, acute or allograft  
- Achilles tendon repair, acute, V-Y or FHL transfer

Total Knee Arthroplasty  
- indications and nonarthroplasty options  
- CR vs. PS vs. UKA  
- surgical approaches  
- implant positioning and ligament balancing

Total Hip arthroplasty  
- indications  
- posterior approach  
- acetabular and femoral preparation
The Ohio State University
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Orthopaedic Residency Program

**General Orthopaedics/Prison –PGY2 and PGY5**

**Prison Service Reading List:**

1) Campbell’s 11th edition chaps 47,48 (knee basics)
2) Campbell’s 11th edition chap 49 (shoulder scope basics)
3) AOA manual (basics of hardware removal)
4) Campbell’s 11th edition chap 46 (LE tendon ruptures)
5) Campbell’s 11th edition chap 6 (basics of TKA)
6) Campbell’s 11th edition chap 7 (basics of THA)

**Prison Conference Schedule:**

1) Thursdays 3-4 pm: surgical indications/pre-op planning and templating upcoming cases.
The Ohio State University
Department of Orthopaedics

Residency Curriculum

Shoulder
About This Curriculum

• It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  
  o At the beginning of the rotation
  o At the conclusion of the rotation

• Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Shoulder Service Guidelines - OSU

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Schedules

During the 2 month rotation, the PGY 3 shoulder resident will rotate with both Dr Jones and Dr Bishop, and then in February 2011, Dr Brian Butler will join the shoulder division and the residents will rotate with him as well. You will be assigned your weekly and monthly schedules at the beginning of each rotation. You will contact Dr Bishop the week prior to the start of your rotation and find time to meet to discuss the logistics and review the expectations/objectives.

Dr Bishop
Monday: Clinic at Martha Morehouse, 7:30 am – 5pm
Tuesday: OR at OSU east, 7am
Wednesday: 1st, 2nd, 5th: Clinic at Stoneridge: 8am
            3rd Wed: Clinic at Morehouse: 8am – 3pm
            4th Wed: Prison cases at OSU Main
Thursday: OR at OSU east, 8am
Friday: 1-3rd Friday: academic time versus add on cases
        4th Friday – Prison cases after conference

Dr Jones
Monday: OR, OSU east, 7am
Tuesday: clinic, Morehouse
         2nd Tuesday – prison cases at Main
Wednesday: clinic, Morehouse
          3rd Wednesday – prison cases at Main
Thursday: OR, OSU east, 8am
Friday: academic time, except 3rd Friday: clinic at Morehouse
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Delineation of Resident Responsibilities:
Shoulder Service

I. Resident Responsibilities for Patient Care

- **Rounding:** During the course of your rotation, patients will be admitted before and or after surgery. The expectation is for the resident to know about and round on all inpatient surgical patients, first thing in the morning, even if you were not involved in the case. You will call or text the attending surgeon after you round to discuss the patients. Rounding is particularly important on the weekends. As of now, there is a rotating senior resident rounding on the weekends at OSU East. If you are not rounding for the weekend, please sign out all Shoulder Service patients to the resident rounding. Please have the resident call the attending after rounds to discuss issues and management. IF you go out of town, please arrange coverage for the rounding of inpatients. DO NOT make the attending find someone to round on their patients – take care of this prior to leaving.

- **Orders:** Orders will be done via the current order entry system. There are order sets for UE post-op orders - you will check this order set. Consult MMT on all patients that were admitted. MMT manages the inpatient pain medications and does prefer to write the inpatient pain med orders. Order X-rays in the PACU on all patients that underwent any type of fixation or implant. Order in-patient PT (but not OT) on all patients. The orders will vary based on the type of surgery performed – you are expected to discuss this with the attending prior to putting in the orders.

- **Dictations:** Most of the shoulder attendings will dictate their own operative notes. However, there will be times when you are responsible for the dictation. Before the patient leaves the OR, the decision should be made as to who will be responsible for the dictation. You will be expected to dictate at least one operative report and review this with the attending prior to the conclusion of the service.

- **Post-Op Radiographs:** As above – all patients that undergo any type of hardware fixation or implant will get radiographs in the PACU. If it is the last case of the day – DO NOT LEAVE – until you see the x-rays were completed and you view them.

- **Dressings/drain:** If the patients are still in the hospital – all dressings are changed on POD 2 – you do the dressing change and look at the wound – NOT the nurse. If there is a drain – check with that individual attending for when to pull the drain.

- **Discharge:** Many of the shoulder surgeries will be outpatient surgeries. You will be responsible to coordinate with the PA’s filling out the discharge paperwork, instruction sheets, rehab orders and pain medication scripts. Pain medication is unique to each attending and should be discussed with the attending staff for preferences. Discharge paperwork is unique to each attending and you should discuss with the respective attending how they approach this. If there are any inpatients for the service – you will be responsible for the discharge summaries for all inpatients, whether or not you participated in their surgery. Please do this on the day of discharge. You are responsible for knowing the plan of care when the patient leaves the hospital, in particular whether they are going to rehab or home.
• **Communication:** Many questions will certainly arise and should be addressed on an as needed basis. Constant communication between all members of the health care team is the best way to get an optimal educational experience and provide the best care possible for each patient.

• **Clinic Notes:** Resident should be able to create appropriate notes in EPIC for each patient encounter. They should discuss with each attending how to include the pertinent smart sets/phrases to help.

II. **Resident Level of Responsibility for Patient Care**

• Please understand that patients are real people whom have developed a relationship with the attending physician. Please give the patient and your attending respect by your professionalism, preparation, and diligent hard work. You will in turn learn more and provide confidence in your attending physicians.

• Resident rotations are structured so that the residents have a one-on-one relationship with the attending. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

• Residents will be expected to be prepared for clinic and OR

• Thorough knowledge of the surgery, surgical approach, and the reasoning, biomechanics, placement, and technique of the surgical reconstructions/repair and implants used is expected.

• Questions related to any case should be discussed with the attending prior to the case (preferably the day before)

• Residents should see and exam the patient prior to surgery and are EXPECTED to have reviewed all the patient office notes and radiographic studies. All notes are now in EPIC and most studies are in RadWeb. If you do not see the studies in RadWeb – often patients come with outside studies. You should recognize this and ask to see and review these studies ahead of time.

• Lack of preparation will prevent participation

III. **Resident Supervision**

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.
IV. **Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.

- Resident should arrange a mid-rotation meeting with Dr Bishop to assure that all goals and objectives are being met and also to assure there is ample time to correct any deficiency that may exist.
Goals and Objectives
Shoulder Rotation – PGY3

I. Core Competency Areas

By the end of the PGY3 rotation on the shoulder service, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team
Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY3 rotation on the Shoulder Service and building upon experiences from the PGY2 year of didactics/prison service and trauma service, the resident should:

Have a detailed knowledge of the anatomical structures of the shoulder and know all surgical approaches to the shoulder
Understand anatomy, physiology, and biomechanics of the shoulder as they relate to patients with injuries and disease
Understanding of the incidence, natural history, cause, presentation, exam findings, classification, non-operative and the operative indications of the following key shoulder conditions:

- AC sprains and injuries and conditions
- Sternoclavicular injuries
- Anterior instability
- Posterior instability
- Multidirectional instability
- Voluntary instability
- Rotator cuff pathology and tears
- Disorders of the biceps tendon
- Shoulder fractures:
  - Clavicle
  - Distal clavicle
  - Scapula and glenoid
  - Proximal humerus fractures: GT, LT, Surgical neck, head split, 3-part, 4-part, valgus impacted 4-part, fx-dislocation
- Arthritic conditions of the shoulder:
  - Osteoarthritis
  - Rheumatoid arthritis
  - Avascular necrosis
  - Traumatic arthritis/arthritis of instability
  - Rotator cuff arthropathy
- Locked dislocations/instability with bone loss
• Disorders of the scapula
• Nerve compression disorders about the shoulder
• Frozen shoulder
• Calcific tendonitis

4. Know the appropriate shoulder radiographs and further imaging studies that should be ordered and evaluated in all of the above conditions.
5. Understand the post-operative protocols/decision making for the postoperative care of rotator cuff, instability, fracture and shoulder replacement surgeries
6. Understand the presentation, evaluation, and treatment of common post-op complications such as arthrofibrosis, recurrent instability and re-tear of the rotator cuff.
7. Resident should be able to take a detailed and appropriate injury specific history and formulate a differential of pathology, appropriate tests to order, and present this patient to the attending.

III. Specialty Specific Psychomotor Skills

By the end of the PGY3 rotation in Shoulder Surgery, the resident should:

1. Have a thorough knowledge of the surgery, surgical approach, and the reasoning, biomechanics, placement, and technique of the surgical reconstructions/repair and implants used.
2. Interpret and synthesize patient history, clinical exam, and diagnostic tests into coherent diagnoses for each condition
3. Be able to appropriately set the patient up in the correct position for surgery
4. Understand how and be able to perform a closed reduction of an anterior or a posterior shoulder dislocation
5. Understand the anatomy/pathoanatomy of why and how to appropriately reduce a displaced proximal humerus fracture
6. In particular, the resident should feel confident in their ability to perform the following at the conclusion of their rotation:
   • Perform a diagnostic shoulder arthroscopy
     o Gain entry to the joint
     o Establish the anterior portal
     o Probe all structures
   • Perform a biceps tenotomy
   • Appropriately place the scope in the SA space
   • Perform a subacromial decompression
   • Perform a mumford
   • Understand suture management in rotator cuff and instability surgery
   • First assist and anticipate all steps of an arthroscopic RCR/instability surgery
   • Understand the approaches to open shoulder surgery and when to use each
   • Know the appropriate retractors and when to use each for open shoulder surgery
   • Perform a deltopectoral approach down to the subscapularis
   • Take down the subscapularis
   • Understand/anticipate and know how to assist for fracture fixation, HHR, TSA
   • Understand the steps to expose the glenoid and know how to retract/assist this aspect
   • Understand the steps, concepts, approaches to bone loss instability cases
   • Expose, reduce with assistance, and plate a clavicle fracture
Goals and Objectives
Shoulder Rotation – PGY5

I. Core Competency Areas

By the end of the PGY 5 rotation on the shoulder service, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY 5 rotation on the Shoulder Service and building upon experiences from the PGY 3 year, the resident should first know and review the basics:

Basic:

1. Have a detailed knowledge of the anatomical structures of the shoulder and know all surgical approaches to the shoulder
2. Understand anatomy, physiology, and biomechanics of the shoulder as they relate to patients with injuries and disease
3. Understanding of the incidence, natural history, cause, presentation, exam findings, classification, non-operative and the operative indications of the following key shoulder conditions:
   - AC sprains and injuries and conditions
   - Sternoclavicular injuries
   - Anterior instability
   - Posterior instability
   - Multidirectional instability
   - Voluntary instability
   - Rotator cuff pathology and tears
   - Disorders of the biceps tendon
   - Shoulder fractures:
     - Clavicle
     - Distal clavicle
     - Scapula and glenoid
     - Proximal humerus fractures: GT, LT, Surgical neck, head split, 3-part, 4-part, valgus impacted 4-part, fx-dislocation
   - Arthritic conditions of the shoulder:
     - Osteoarthritis
o Rheumatoid arthritis
o Avascular necrosis
o Traumatic arthritis/arthrosis of instability
o Rotator cuff arthropathy
• Locked dislocations/instability with bone loss
• Disorders of the scapula
• Nerve compression disorders about the shoulder
• Frozen shoulder
• Calcific tendonitis

4. Know the appropriate shoulder radiographs and further imaging studies that should be ordered and evaluated in all of the above conditions.
5. Understand the post-operative protocols/decision making for the postoperative care of rotator cuff, instability, fracture and shoulder replacement surgeries
6. Understand the presentation, evaluation, and treatment of common post-op complications such as arthrofibrosis, recurrent instability and re-tear of the rotator cuff.
7. Resident should be able to take a detailed and appropriate injury specific history and formulate a differential of pathology, appropriate tests to order, and present this patient to the attending.

Advanced:

1. Be able to discuss and know the non-operative treatment options for all of the above listed shoulder conditions.
2. Know the reconstructive options used in the treatment of AC instability; anterior/posterior/Multidirectional instability; rotator cuff tears; biceps pathology
3. Understand the influence of bone loss in instability cases and how that effects the surgical decision making
4. Know the fixation options and be able to discuss the reasoning on how to treat fractures of the proximal humerus, clavicle, distal clavicle, glenoid and scapula.
5. Know the reconstructive options that are available for the treatment of shoulder arthritis, as well as cuff arthropathy, and understand the different indications for TSA versus HHR versus reverse TSA.
6. Understand and be able to discuss the thought process and work-up in the treatment of the more complex shoulder problems, in particular revision shoulder surgeries and the failed surgery with complications.

III. Specialty Specific Psychomotor Skills

By the end of the PGY 5 rotation in Shoulder Surgery and building upon the experience from the PGY 3 rotation, the resident should:

Basics:

1. Have a thorough knowledge of the surgery, surgical approach, and the reasoning, biomechanics, placement, and technique of the surgical reconstructions/repair and implants used.
2. Interpret and synthesize patient history, clinical exam, and diagnostic tests into coherent diagnoses for each condition
3. Be able to appropriately set the patient up in the correct position for surgery
4. Understand how and be able to perform a closed reduction of an anterior or a posterior shoulder dislocation
5. Understand the anatomy/pathoanatomy of why and how to appropriately reduce a displaced proximal humerus fracture
6. In particular, the resident should feel confident in their ability to perform the following at the conclusion of their rotation:
   - Perform a diagnostic shoulder arthroscopy
     - Gain entry to the joint
     - Establish the anterior portal
     - Probe all structures
   - Perform a biceps tenotomy
   - Appropriately place the scope in the SA space
   - Perform a subacromial decompression
   - Perform a mumford
   - Understand suture management in rotator cuff and instability surgery
   - First assist and anticipate all steps of an arthroscopic RCR/instability surgery
   - Understand the approaches to open shoulder surgery and when to use each
   - Know the appropriate retractors and when to use each for open shoulder surgery
   - Perform a deltopectoral approach down to the subscapularis
   - Take down the subscapularis
   - Understand/anticipate and know how to assist for fracture fixation, HHR, TSA
   - Understand the steps to expose the glenoid and know how to retract/assist this aspect
   - Understand the steps, concepts, approaches to bone loss instability cases
   - Expose, reduce with assistance, and plate a clavicle fracture

**Advanced:**

- Placement of suture anchors in instability or SLAP lesions
- Passage of suture through the capsule and or labrum
- Tying arthroscopic suture knot
- Placement of suture anchors in Rotator cuff tears
- Understand rotator cuff repair suture management
- First assist and anticipate all steps of an arthroscopic RCR
- Pass suture through the rotator cuff arthroscopically
- Perform the osteotomy and placement of the humeral component in a TSA
- Understand and know how to perform the releases to expose the glenoid
- Perform the reduce maneuver and plating of proximal humerus and clavicle fractures
- Understand tuberosity reconstruction in a 4-part proximal humerus fracture
Physical Exam Competencies
Shoulder Service: PGY3 at OSU

By the end of the PGY 3 rotation on the Shoulder Service, the resident should be able to demonstrate proficiency in the key physical examination tests; The PGY 5 rotation is an opportunity to polish these physical examination skills.

Shoulder exam:

☐ Normal examination of the shoulder, including:
  ☐ Inspection: atrophy, deformity, skin changes, prior scars, etc.
  ☐ Palpation:
    - AC joint
    - Greater tuberosity
    - Bicipital groove
    - Coracoid process
  ☐ Range of motion:
    - Internal/external rotation
    - Forward elevation
    - Abduction/adduction
  ☐ Neurovascular testing

Special Tests:

Instability Testing:
☐ Load and shift test
☐ Apprehension test
☐ Relocation sign
☐ Posterior apprehension sign
☐ Circumduction test
☐ Sulcus sign (with and without external rotation)
☐ Generalized ligamentous laxity

Rotator Cuff Testing:
☐ Jobe test (empty can test)
☐ External rotation “lag” sign
☐ Hornblower’s sign
☐ Resisted external rotation at the side and at 90° abduction
☐ Lift off
☐ Belly press
☐ Drop arm

Impingement Testing:
- Neer/Impingement sign
- Hawkin’s test
- Neer Impingement test

Other Tests:
- Cross body adduction
- Yergason’s test
- Speed’s test
- Active compression (O’brien’s test)
- Scapular winging/scapular stabilization
- Adson’s test (thoracic outlet syndrome)
- Spurling’s test (cervical spine involvement)
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**Physical Exam Competencies**  
**Shoulder Service: PGY5 at Riverside**

*By the end of the PGY5 rotation on the Shoulder Service, the resident should be able to demonstrate proficiency in the key physical examination tests;*

**Shoulder exam:**

- Normal examination of the shoulder, including:
  - Inspection: atrophy, deformity, skin changes, prior scars, etc.
  - Palpation:
    - AC joint
    - Greater tuberosity
    - Bicipital groove
    - Coracoid process
- Range of motion:
  - Internal/external rotation
  - Forward elevation
  - Abduction/adduction
- Neurovascular testing

**Special Tests:**

- Instability Testing:
  - Load and shift test
  - Apprehension test
  - Relocation sign
  - Posterior apprehension sign
  - Circumduction test
  - Sulcus sign (with and without external rotation)
  - Generalized ligamentous laxity

- Rotator Cuff Testing:
  - Jobe test (empty can test)
  - External rotation “lag” sign
  - Hornblower’s sign
  - Resisted external rotation at the side and at 90° abduction
  - Lift off
  - Belly press
  - Drop arm

- Impingement Testing:
  - Neer/Impingement sign
- Hawkin’s test
- Neer Impingement test

Other Tests:
- Cross body adduction
- Yergason’s test
- Speed’s test
- Active compression (O’brien’s test)
- Scapular winging/scapular stabilization
- Adson’s test (thoracic outlet syndrome)
- Spurling’s test (cervical spine involvement)
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**Surgical Competencies**

*Shoulder Service: PGY3 at OSU*

**By the end of the PGY3 rotation in Shoulder, the resident should be able to:**

- Perform a diagnostic shoulder arthroscopy
  - Gain entry to the joint
  - Establish the anterior portal
  - Probe all structures
- Perform a biceps tenotomy
- Appropriately place the scope in the SA space
- Perform a subacromial decompression
- Perform a mumford
- Understand suture management in rotator cuff and instability surgery
- First assist and anticipate all steps of an arthroscopic RCR/instability surgery
- Understand the approaches to open shoulder surgery and when to use each
- Know the appropriate retractors and when to use each for open shoulder surgery
- Perform a deltopectoral approach down to the subscapularis
- Take down the subscapularis
- Understand/anticipate and know how to assist for fracture fixation, HHR, TSA
- Understand the steps to expose the glenoid and know how to retract/assist this aspect
- Understand the steps, concepts, approaches to bone loss instability cases
- Expose, reduce with assistance, and plate a clavicle fracture
Shoulder Reading Lists – PGY3 & PGY5

1) ASES Curriculum Guide for the Treatment of Shoulder Injury
   Comprehensive reference guide for every type of shoulder injury, with the most
   important/historic reference provided – developed by ASES Education
   Committee for the basic foundation of information on the evaluation and
   treatment of shoulder injury and disease

2) Disorders of the Shoulder, second edition, editors Iannotti and Williams

3) Complex and Revision Problems in the Shoulder, Editors Iannotti, Flatow
   Recommend this book to assist with the understanding of the complex shoulder
   injuries/surgeries that the resident will see on the shoulder service – may
   borrow/photocopy chapters on a case by case basis

4) OKU Shoulder and Elbow

All sources on loan from Dr Bishop/available to copy

Arthroscopic Knot Tying Board/set – available from Dr Bishop – MUST give back at conclusion
of the rotation
The Ohio State University
Department of Orthopaedics

Residency Curriculum

Spine
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  - At the beginning of the rotation
  - At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
ORTHOPTEDIC SPINE SERVICE GUIDELINES

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Associate Professor and Spine Section Chief
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Assistant Professor
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Office: 2050 Kenny Rd

Schedules

<table>
<thead>
<tr>
<th>Dr. Lakatos</th>
<th>Dr. Wisneski</th>
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</thead>
<tbody>
<tr>
<td>Monday: Spine clinic – Kenny Rd.</td>
<td>Monday:</td>
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<tr>
<td>Tuesday: OR at OSU East or Grant</td>
<td>Tuesday:</td>
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<tr>
<td>Wednesday: OR at OSU Main or Grant</td>
<td>Wednesday: TBD</td>
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<tr>
<td>Thursday: OR at OSU East or Grant</td>
<td>Thursday:</td>
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<tr>
<td>Friday: am – Clinic</td>
<td>Friday:</td>
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<tr>
<td>Pm - Conferences</td>
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</tbody>
</table>

Please consult individual attendings for weekly variations in the hourly clinic schedule.

Rounds

Rounds on operative cases at OSU East are essential for understanding the postoperative patient care requirements. Therefore, the resident is expected to round every day at OSU East and/or OSU Main.

Conferences

Didactic Spine conferences will be incorporated into the Friday conference schedule. Weekly Multidisciplinary Spine Conference- Thursday 10 AM @ 10th Floor Doan Hall, Rm# Spine Journal Club- bimonthly as scheduled.

Physician’s Assistants on the service
Physician’s Assistants can be a valuable source of information regarding future weekly schedules, the peri-operative care routine and in coordinating inpatient care and discharge plans. They will help greatly in lightening the burden of administrative duties that are non-educational.

P.A.’s may also assist in coordination of rounds and inpatient care at OSU Main Hospital. However, you will enter orders via the CAPI system and dictate discharge summaries as required for inpatients at OSU Main acquired through spine call.

Initial postoperative care and discharge orders are covered by a set of preprinted postoperative orders. The physician’s assistant may complete these. Please carefully review these in addition to the orders and note during daily rounds to maintain the highest awareness of care provided for our patients.

GENERAL CARE GUIDELINES FOR THE PATIENT WITH LOW BACK AND NECK SYNDROMES:

It is important to understand that patient care decision-making is a part of the global algorithm of care that is based more on the presenting clinical syndrome than on the pathologic changes identified on the MRI scan. The AHCPR guidelines from 1994 are a good starting point in developing a structured care plan and are included on the “OSU Spine Classics” DVD. Please review the algorithms contained on this disc and the “Physical Examination of the Spine” handout. Thereafter- **ASK Questions!**

Key points in the algorithm:

The most important job in the initial evaluation and management of a new patient presenting with an acute problem (or even subacute or chronic problem) is to exclude other pathologic entities, most importantly tumor and infection, through the history, exam and supplemental study. Know the red flag symptoms for tumor, infection, fracture and cauda equina syndrome.

Following the exclusion of those more worrisome pathologic entities, the treatment algorithm is based on the specific syndrome that depends on pain duration, pain location, and the presence or absence of neurologic impairment detected by motor reflex, sensory exam and EMG.

In the absence of red flags, advanced imaging is usually delayed for at least 4 weeks, even in the presence of clinically apparent lumbar disk herniation. Beyond that point, surgical intervention may be offered for the syndrome that includes radicular pain and detected neural impairment, if neural compression is identified on imaging. For others, particularly those with predominantly local back or neck pain, surgery is generally best-deferred and palliative measures and non-operative measures instituted for the first 3 months. These delays are warranted to allow for improvement without surgery, which is the usual case.

Appropriate imaging such as MRI is relevant in the patient’s care to define the specific pathoanatomic entity likely corresponding to the specific clinical syndrome, based on the pain location, exam and time duration. But this should not be in the initial evaluation protocol, in the absence of red flags, as there are many asymptomatic abnormalities seen in the MRI’s and CT’s of “normal” people, and such findings frequently detract from the usual appropriate optimism for the success of non-operative care. Timing of imaging is dependent upon the specific presenting syndrome: typically immediately for those with red flags, 4 weeks for those with radicular syndromes with neurologic findings, and 3 months for others.
OSU Spine Learning Objectives

GENERAL EDUCATIONAL GOALS

At the completion of this rotation the resident should be able to:

1. “Cure sometimes, heal often and comfort always” - Ambrose Pare
2. Be familiar with the principles and practice of spinal surgery.
3. Be proficient in the examination and management of spine surgery patients.
4. Be proficient and knowledgeable in the discussion of the patients from the initial hospital visit through surgical managements and postoperative recuperation and follow-up.
5. To acquire a practical field of knowledge concerning spinal disorders, including knowledge of basic science, anatomy, physiology, and biomechanics of the spine and an understanding of how to apply this information clinically. Those disorders that affect the spine including: congenital, infections, inflammatory, developmental, metabolic, degenerative, neoplastic, traumatic and deformities will be covered in detail, whether they occur in the cervical, thoracic, or lumbar spinal. Additional time will be spent studying spinal cord injuries.
6. To understand the appropriate methods for a thorough history and physical examination of the spinal patient.
7. To understand the appropriate clinical and diagnostic methods for evaluation of patients with acute or chronic low back pain, i.e. a working knowledge of such spinal disorders as: all types of disc disorders, spinal stenosis, fractures/dislocations, deformities and the “failed low back”.
8. To gain knowledge of interpretive tests relating to spinal disorders including: plain x-rays, CAT scans, myelograms, discography, electrodiagnostic testing and MRI.
9. To gain an appreciation for the management of these patients using nonoperative (medications, therapy, orthotics, etc.), as well as operative means (perioperative and surgical management).
10. To participate directly in the care of patients in the office or clinic setting and in the hospital. To follow patients through initial assessment, evaluation, workup, surgery, post-operative care and follow-up.

SPECIFIC DUTIES AND RESPONSIBILITIES
The resident physician is expected to:

1. To work directly with and under the direction of the faculty of the Ohio State University Orthopaedic Department.
2. To work toward the accomplishment of the aforementioned goals through readings, deliberation, thoughtful questioning and physical participation in the care of patients.
3. To prepare appropriate cases for presentation at Spine Conference on a regular and frequent basis and Grand Rounds cases once a month.
Goals and Objectives for the Spine Service

At the completion of their rotation on the spine service the resident should be able to:

1. Evaluate and manage patients with spinal pathology including the ability to examine the spine as well as central and peripheral nervous system, interpret spinal imaging modalities and prioritize a spine intervention.
2. Understand patient selection and indications for operative and nonoperative management of spinal problems in the outpatient clinic and emergency department.
3. Develop an understanding of various spinal implants, their indications and usage in operative techniques.
4. Acquire the initial understanding of technical skills that would include and achieve goals of decompression, instrumentation and stabilization of the cervical, thoracic and lumbar spine. The PGY2 and PGY4 level residents are not expected to become surgically independent in spinal operations.
5. Recognize and treat complications of spinal surgery or conservatively managed conditions.
6. Develop an understanding of the diagnosis and management of such conditions as:
   - Degenerative disc disease
   - Herniated nucleus pulposus with radiculopathy
   - Spinal Stenosis
   - Spondylolysis and Spondylolisthesis
   - Ankylosing Spondylitis and Diffuse Idiopathic Skeletal Hyperostosis (DISH)
   - Rheumatoid arthritis (especially cervical spine involvement)
   - Spinal tumors
   - Spinal Infections
7. Develop an understanding of the pathophysiology, conservative treatment and indications for operative treatment of idiopathic scoliosis, scoliosis related to neuromuscular disease and adult scoliosis.
8. Diagnosis of spinal trauma including recognition from routine imaging, classification of the fracture or dislocation and differentiation of complete and incomplete cord injuries, cauda equina syndrome and nerve root injury and be able to formulate a treatment plan.
9. Understand the indications for and appropriately ordered spinal orthotics.
10. Develop an understanding of other treatment modalities for patients with chronic, mechanical, axial neck and back pain.
OSU Spine Learning Objectives

Miscellaneous:

1. The usual rules that apply to resident activities regarding vacation and leave time apply to this rotation.
2. The resident may elect to participate in a project related to spinal disorders.
3. A strong emphasis will be placed on the learning of the aforementioned principles in adults but the resident will also be expected to demonstrate a functional knowledge of how these principles apply to all patients with spinal disorders.
4. The resident may elect to spend a portion of the rotation working on a basic science research project regarding the spine under the supervision of the Ohio State University faculty.
5. Night call duty for the residents will be assigned by the office of the Residency Program Director, the resident should be ready and available to participate with spinal fractures on the occasional emergency case, or to help out where appropriate.
6. The resident’s performance evaluation will be conducted by the spine faculty of the Ohio State University and forwarded to the Department Chairman of Orthopaedics at the completion of the rotation.
7. The PGY3 resident will participate in this three-month rotation and a PGY4 may elect to participate as well.

Rotation Description:
This rotation is designed for a PGY-2 and PGY-4 resident to participate in a two-month block during which they will interact with faculty members of the Department of Orthopaedic Surgery and learn how to evaluate all types of spinal disorders. Residents receive instruction in obtaining pertinent history, performing a complete physical examination, formulating a differential diagnosis, making decisions on when to order the appropriate diagnostic studies and recommending treatment. The resident will see patients in the office, follow them through their hospital course, and follow them during their recuperative period as much as possible. By the completion of this block of time, the resident should be able to evaluate patients thoroughly and determine which diagnostic studies are indicated and when. The resident should also be able to understand the various treatment options and when surgery is indicated. He is expected to participate in surgery during which time he will become familiar with the surgical anatomy of the spine, the various approaches, and proper techniques of exposure. The resident will work under direct supervision in the operating room at all times. He will also become familiar with the postoperative management of these patients.

Conferences:
The resident will be expected to participate in conferences at the University and be able to present cases relating to spinal disorders in a logical and cohesive fashion. The weekly Spine Conference at the OSU Spine Center is an opportunity for presentation of patients and the discussion of indications for surgery as well as a time for more in-depth discussions of spinal topics. The resident may also be asked to participate in a clinical study at the Ohio State University Medical Center.
### The Ohio State University Medical Center
### Department of Orthopaedic Surgery
### Spine Learning Objectives

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>PGY – 2 and PGY-4 Rotations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient Care</strong></td>
<td><strong>Faculty will evaluate the resident’s ability to obtain an H &amp;P and appropriate radiographs and formulate a treatment plan. Will be evaluated on a regular basis in the outpatient clinic when resident is given the opportunity to present at least 3 new and follow-up patients and formulate a treatment plan.</strong></td>
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<td>In the operating room resident’s familiarity with the patient, indications for surgery and postoperative plan after surgery will be reviewed by the faculty.</td>
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<td>Able to perform a comprehensive history and physical examination for a patient seen in the Spine clinics and in the emergency room. A complete history includes recording the chief complaint, history and detailed mechanism of injury if any, occupational requirements and hobbies, past medical and surgical history, medications and social history. The physical exam should include an exam for identification of the main categories of problems: (&quot;TAMING MNEMONIC&quot;)</td>
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<tr>
<td></td>
<td>1) Traumatic</td>
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<td>2) Arthritic/Degenerative</td>
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<td>3) Metabolic</td>
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<td>4) Inflammatory/Infections</td>
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<td>5) Neoplastic</td>
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<td>6) Genetic/Congenital</td>
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<td>Possesses a working knowledge of the various conditions – the etiology and the natural history with and without surgical treatment.</td>
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<td>Effectively able to evaluate the following conditions via a thorough H&amp;P:</td>
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<tr>
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<td>1) disc disorders</td>
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<td>2) spinal stenosis</td>
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<td>3) fractures/dislocations</td>
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<td>4) deformities</td>
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<td>5) the “failed low back”</td>
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<td></td>
<td>6) spinal cord injury</td>
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<td>7) spondylosis</td>
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<td>8) instability</td>
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<td>Effectively communicates the history taken from the patient and/or family in a succinct and systematic fashion</td>
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<td>Effectively communicates and demonstrates respectful and caring behavior when interacting with patients, their guardians and their families</td>
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<td>Competent in developing initial management plan including specialized investigations for patients with hand complaints such as MRI scans, bone scans, CT or electrophysiological studies</td>
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<td>Competent in assuming responsibility for specifically inquiring about the presence or absence of relevant systemic disease depending upon the condition being evaluated – such as diabetes mellitus, hypothyroidism, polyarthritis, liver disease</td>
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</table>
| Patient Care (cont.) | Demonstrates knowledge and application of knowledge of non-operative treatment modalities including medical therapy such as anti-inflammatories, prescription of appropriate physical therapy, and bracing
Demonstrates understanding and ability in commonly encountered surgical procedures in spine surgery such as disc excision, decompression, arthrodesis, instrumentation, and internal fixation
Demonstrates facility in positioning the patient in the operating room, appropriate prepping and draping of the patient, and the appropriate application of a postoperative dressing in a functional or protective position as per the procedure performed
Able to apply knowledge of the basics of postoperative therapy to patient care
Demonstrates the ability to practice culturally competent medicine
Able to use information technology such as data from current clinical studies as well as information from current journals to support patient care decisions and patient education
Able to work with other health care professionals from various disciplines to provide complete patient-focused care |
| Medical Knowledge | Demonstrates knowledge of relevant history and physical exam findings and lab results for patients on whom surgical treatment is being planned
1. Possesses understanding of the scientific basis of diagnosis and treatment of commonly encountered surgical conditions, such as disc disorders, spinal stenosis, fractures/dislocations, deformities and the “failed low back”
Demonstrates knowledge of the indications for basic spine surgical procedures
Demonstrates knowledge of non operative treatment (anti-inflammatories, therapy, application of heat and cold as well as basics of orthotic management) including application of tongs and traction
Demonstrates understanding of anatomy of the spine through active participation in the Anatomy dissection sessions
Demonstrates basic understanding of the classic and contemporary literature pertaining to surgery of the spine through self-guided study and active participation in the Journal Club
Demonstrates knowledge of the basics of postoperative therapy |
| Practice-Based Learning & Improvement | Demonstrates familiarity and understanding of reading materials describing the diagnosis and treatment of spine conditions: Orthopaedic Knowledge Update: Spine by Steven R., MD Garfin, Alexander R., MD Vaccaro, North American Spine Society Spine Surgery: Tricks of the Trade by Alexander R., MD Vaccaro, Todd Jl., MD Albert The Adult and Pediatric Spine: Principles, Practice, and Surgery by John W. Frymoyer, Howard S., MD An, Scott D., MD Boden, William C., MD Lauerman, Lawrence G., MD Lenke, Robert F., MD Mclain, Sam W. Wiesel OSU SPINE CLASSICS DVD as prepared by Dr. Wisneski Essentials of the Spinal Exam by RJ Wisneski, MD- contained on SPINE CLASSICS DVD | Participates at conferences and journal clubs to demonstrate awareness of background and recent advances in common surgical procedures and surgical principles and indications. An exit interview will be conducted along with a review of the operative log at the start and completion of the rotation. Able to accurately locate, appraise and assimilate evidence from scientific studies relating to the patient’s surgical problem. This requires knowledge of the pertinent recent literature, as may be obtained from the American and British Journal of Bone and Joint Surgery, and the journal Foot and Ankle Demonstrates facility in the critical reading of a manuscript, notably those from the Spine journal through active participation in the service’s Journal Club Demonstrates facility at using on-line search engines, such as MEDLINE, to locate and access appropriate educational materials and peer review reference articles relevant to patient care Successfully maintains a record of all operative cases via the resident operative log via the ACGME website |
| Interpersonal & Communication Skills | Demonstrates communication skills that result in an effective information exchange with patients, their families and caregivers, and other physicians and members of the health care team Creates and sustains a therapeutic and ethically sound relationship with patients and their families Able to effectively use listening skills in communication with all parties involved in patient care Able to work effectively with other members of the team, specifically medical assistants, medical specialists, Nurses and therapists | Ability to obtain a history, communication of operation-specific needs to the surgical staff, convey rehabilitation plan to therapist, discuss surgery and outcome with patient and family, 360 degree eval |
| Professionalism | Demonstrates a commitment to carry out professional responsibilities, an adherence to ethical principles and standards and a sensitivity to the diverse patient population from all over the state  
| | Demonstrates professionalism and a responsiveness to a patient’s sensitivity to age, culture and gender  
| | Understands and demonstrates the ability to obtain an informed consent from a patient which includes the presentation of the natural history of both surgical and non-surgical care of the patient’s condition  
| | Demonstrates an understanding of the value of patient confidentiality  
| | Demonstrates sensitivity to the culture, age, gender and disabilities of fellow health care professionals  
| Systems-Based Practice | Demonstrates an understanding of how their patient care and other professional practices affect other care professionals and the health care organization. Specifically, the identification of a proper site before surgery and a confirmation of the operative procedure to be done with the Chief Resident or Hand Fellow in the pre-operative holding area is crucial in the duties of the second year resident.  
| | Demonstrates appropriate conduct in the timely completion of the dictated operative notes, chart operative summaries and discharge summaries as well as clinic notes.  
| | Understands how the delay of these activities impacts patient care throughout the system on the whole  
| | Successfully teams with the staff and ancillary personnel to ensure that all radiographic and clinical notes are available preoperatively and intraoperatively  
| 360 evals |  
| 360 eval by peers, senior residents and ancillary staff |
# CLINICAL PATHWAY: COMPLEX SPINE SURGERY

**PATIENT OUTCOMES**

<table>
<thead>
<tr>
<th>DAY/DATE</th>
<th>PATIENT OUTCOMES</th>
<th>ADMISSION/SDA/OR DAY</th>
<th>POST-OP DAY 1</th>
<th>POST-OP DAY 2</th>
<th>POST-OP DAY 3</th>
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<tbody>
<tr>
<td>POST-OP DAY 1</td>
<td>Patient will:</td>
<td>Patient will:</td>
<td>Patient will:</td>
<td>Patient will:</td>
<td>Patient will:</td>
</tr>
<tr>
<td>POST-OP DAY 2</td>
<td>Attend pre-op spine class</td>
<td>Verbalize an understanding of surgical procedure</td>
<td>Maintain circulatory and nerve function</td>
<td>Be OOB independently or OOB with assistance for all meals. Skin/wound will be infection free</td>
<td>Be able to walk at all times when OOB</td>
</tr>
<tr>
<td>POST-OP DAY 3</td>
<td>Receive education regarding home care</td>
<td>Verbalize pain scale and when to call nurse if necessary</td>
<td>Sit/stand at edge of bed wearing brace and with assist</td>
<td>Hemodynamic stability as evidenced by VS, lab data &amp; clinical presentation</td>
<td>Ambulate up and down stairs if needed</td>
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<td></td>
<td>Family/S.O. included in education when possible.</td>
<td>Have pain control of 4/10 or less throughout post-op course</td>
<td>Be independent with UE/LE exercises</td>
<td>Advance to appropriate diet and liquid</td>
<td>Verbalize spine precautions</td>
</tr>
<tr>
<td></td>
<td>Observe for bladder and bowel function</td>
<td>Verbalize need to request PRN meds prior to escalation of pain</td>
<td>Skin/incision will be free of infection</td>
<td>Return to a normal elimination pattern</td>
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</tbody>
</table>

**MEDICATIONS**

<table>
<thead>
<tr>
<th>DAY/DATE</th>
<th>MEDICATIONS</th>
<th>ADMISSION/SDA/OR DAY</th>
<th>POST-OP DAY 1</th>
<th>POST-OP DAY 2</th>
<th>POST-OP DAY 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>POST-OP DAY 1</td>
<td>Obtain list of all home medications. Pt will identify pharmacy for all post-op prescriptions.</td>
<td>Pain control</td>
<td>Pain control</td>
<td>Pain control</td>
<td>Pain control</td>
</tr>
<tr>
<td>POST-OP DAY 2</td>
<td>Tolerant Patients: Continue Longacting (LA) opioids as baseline</td>
<td>Progress patient to PO pain meds as soon as tolerated.</td>
<td>Progress patient to PO pain meds as soon as tolerated</td>
<td>Ensure adequate pain control with PO analgesia</td>
<td></td>
</tr>
<tr>
<td>POST-OP DAY 3</td>
<td>Pre-op: Take a.m. LA opioid with sip H2O</td>
<td>Call HO for:</td>
<td>Call HO for:</td>
<td>Administer pain meds prior to PT/OT to ensure participation</td>
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<tr>
<td></td>
<td>Post-op: Resume LA Opioid when pt is tolerating PO</td>
<td>Inadequate pain relief (&gt;4/10), agitation, restlessess, lethargy, T&gt;102°, itching, nausea, RR&lt;12, skin erythema , rash,s/s of CSF leak, or neurological changes.</td>
<td>Inadequate pain relief (&gt;4/10), agitation, restlessness, lethargy, T&gt;102°, itching, nausea, RR&lt;12, skin erythema , rash,s/s of CSF leak, or neurological changes.</td>
<td>Discharge to home</td>
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<td>Call HO for:</td>
<td>Call HO for:</td>
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<td></td>
<td>Call HO for:</td>
<td>SBP &lt; 90</td>
<td>SBP &lt; 90</td>
<td>Call HO for:</td>
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<td></td>
<td></td>
<td>P&lt; 60 &gt; 120</td>
<td>P&lt; 60 &gt; 120</td>
<td>Inadequate pain relief (&gt;4/10), agitation, restlessess, lethargy, T&gt;102°, itching, nausea, RR&lt;12, skin erythema , rash,s/s of CSF leak, or neurological changes.</td>
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<td></td>
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<td>RR&lt; 60 &gt; 120</td>
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<td>Call HO for:</td>
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<tr>
<td></td>
<td></td>
<td>UOP &lt; 200cc/8hr</td>
<td>UOP &lt; 200cc/8hr</td>
<td>SBP &lt; 90</td>
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<tr>
<td></td>
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<td>Temp &gt; 38.6° w/Tylenol</td>
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<td>P&lt; 60 &gt; 120</td>
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<td>RR&lt; 60 &gt; 120</td>
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<td>Temp &gt; 38.6°</td>
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**NURSING CALL FOR:**

<table>
<thead>
<tr>
<th>DAY/DATE</th>
<th>NURSING CALL FOR:</th>
<th>ADMISSION/SDA/OR DAY</th>
<th>POST-OP DAY 1</th>
<th>POST-OP DAY 2</th>
<th>POST-OP DAY 3</th>
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</thead>
<tbody>
<tr>
<td>POST-OP DAY 1</td>
<td>Obtain cardiac/medical clearance for surgery</td>
<td>Pre-op baseline VS</td>
<td>VS every 4hr:</td>
<td>VS every 8hr:</td>
<td>Call HO for:</td>
</tr>
<tr>
<td>POST-OP DAY 2</td>
<td>Pre-op: Take a.m. LA opioid with sip H2O</td>
<td>Post-op VS per hospital policy</td>
<td>Monitor per routine</td>
<td>Monitor per routine</td>
<td>Inadequate pain relief (&gt;4/10), agitation, restlessess, lethargy, T&gt;102°, itching, nausea, RR&lt;12, skin erythema , rash,s/s of CSF leak, or neurological changes.</td>
</tr>
<tr>
<td>POST-OP DAY 3</td>
<td>Post-op: Resume LA Opioid when pt is tolerating PO</td>
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**CARDIOVASCULAR**

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<tr>
<th>DAY/DATE</th>
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<th>POST-OP DAY 3</th>
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<td>POST-OP DAY 2</td>
<td></td>
<td>Post-op VS per hospital policy</td>
<td>Monitor per routine</td>
<td>Monitor per routine</td>
<td>Inadequate pain relief (&gt;4/10), agitation, restlessess, lethargy, T&gt;102°, itching, nausea, RR&lt;12, skin erythema , rash,s/s of CSF leak, or neurological changes.</td>
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<td>SBP &lt; 90</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P&lt; 60 &gt; 120</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RR&lt; 60 &gt; 120</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UOP &lt; 200cc/8hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temp &gt; 38.6°</td>
</tr>
</tbody>
</table>

**RESPIRATORY**

<table>
<thead>
<tr>
<th>DAY/DATE</th>
<th>RESPIRATORY</th>
<th>ADMISSION/SDA/OR DAY</th>
<th>POST-OP DAY 1</th>
<th>POST-OP DAY 2</th>
<th>POST-OP DAY 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>POST-OP DAY 1</td>
<td>Introduce and review use of IS and teaching regarding C&amp;DB exercises</td>
<td>For extubated patients:</td>
<td>Encourage CDB every hr WA</td>
<td>Encourage CDB every hr WA</td>
<td>Encourage CDB every hr WA</td>
</tr>
<tr>
<td>POST-OP DAY 2</td>
<td></td>
<td>Teach &amp; encourage CDB every hr WA IS every hour x10 (goal 1500 cc)</td>
<td>IS every hour x10 (goal 2000 cc)</td>
<td>IS every hour x10 (goal 2000 cc)</td>
<td>Continue IS 4 x day (goal 2000 cc)</td>
</tr>
<tr>
<td>POST-OP DAY 3</td>
<td></td>
<td></td>
<td>Wean O2 per protocol</td>
<td>Wean O2 per protocol</td>
<td>Wean O2 per protocol</td>
</tr>
</tbody>
</table>

**NUTRITION**

<table>
<thead>
<tr>
<th>DAY/DATE</th>
<th>NUTRITION</th>
<th>ADMISSION/SDA/OR DAY</th>
<th>POST-OP DAY 1</th>
<th>POST-OP DAY 2</th>
<th>POST-OP DAY 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>POST-OP DAY 1</td>
<td>Patient will be given list of community resources for meals</td>
<td>Pre-op:</td>
<td>Clear liquid diet, may advance diet as tolerated with + bowel sounds/flatus</td>
<td>Pt should resume regular pre-admission diet when tolerated.</td>
<td>D/C IV upon discharge</td>
</tr>
<tr>
<td>POST-OP DAY 3</td>
<td></td>
<td>Dentures should be removed if applicable and stored in patient room</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Post-op:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Screen for nutritional risk: notify Nutritional Services if @ risk</td>
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<td></td>
</tr>
</tbody>
</table>

**ELIMINATION/REPRODUCTIVE**

<table>
<thead>
<tr>
<th>DAY/DATE</th>
<th>ELIMINATION/REPRODUCTIVE</th>
<th>ADMISSION/SDA/OR DAY</th>
<th>POST-OP DAY 1</th>
<th>POST-OP DAY 2</th>
<th>POST-OP DAY 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>POST-OP DAY 1</td>
<td>1 &amp; O Foley</td>
<td>1 &amp; O Foley</td>
<td>1 &amp; O Foley</td>
<td>1 &amp; O Foley</td>
<td>1 &amp; O Foley</td>
</tr>
<tr>
<td>POST-OP DAY 2</td>
<td>Measure surgical site drain every 8 hrs and maintain</td>
<td>Measure surgical site drain every 8 hrs and maintain</td>
<td>Bladder Scan Protocol if no void after 6 hours. Notify HO if no BM since admission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POST-OP DAY 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Notify HO if no BM since admission</td>
</tr>
<tr>
<td><strong>Discharge Criteria</strong></td>
<td><strong>Home or Home with Home Health</strong></td>
<td><strong>Post-Acute Facility (SNF, inpatient rehab)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
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</tr>
</tbody>
</table>
| **Functional** | - Independent with bed mobility  
- Transfers independently, including getting in and out of bed  
- Patient will maintain and verbalize spinal precautions (see above)  
- Ambulates independently ≥50 feet (with or without assistive device)  
- Independent with ADL’s (bathing, clothing, toileting)  
- Patient or caregiver safely demonstrate ability to don and doff brace if applicable | - Transfers with minimal to maximal assistance (including getting in and out of bed)  
- Ambulates with minimal to maximal assistance ≥40 feet  
- Poor compliance with spinal precautions  
- Needs moderate to maximal assistance with ADL’s |
| **Clinical** | - Tolerates fluid and food without nausea and vomiting  
- Adequate pain control w/ oral medication or by non-narcotic means. Mobility not limited by pain.  
- No signs of surgical site infection (drainage, warmth, or redness)  
- Temperature normal or ≤100.0°F  
- Patient is able to urinate independently | - Tolerates fluids and food without vomiting  
- Functional mobility is limited by pain  
- Surgical wound without redness, warmth, or drainage or may require further evaluation  
- Lab values meet admission criteria for post-acute facility |
I. Specialty Specific Knowledge and Psychomotor Skills-
Spine
( applies to both PGY2 and PGY4 Rotation)

Team specific:

• Evaluation (including history and physical, interpretation of radiographic studies as well as creation of treatment plans for patients in orthopedic spine clinic)

• Learn and incorporate various OSUMC system resources such as CAPI and IHIS to improve and expedite patient care

• Learn and use internet-based systems such as Pub Med to research patient diagnoses, treatment outcomes, and other aspects of patient care

• Understand non-operative treatment of common spine conditions
  Indications for nonoperative treatment
  Type of bracing
  Spinal Precautions
  Rehabilitation protocol

• Learn and be proficient with the evaluation of spinal injuries in poly-traumatized patients

• Understand operative treatment of common spinal disorders
  o Indications for operative treatment
  o Operative risks, benefits, possible complications
  o Perioperative treatment

  🎒 🎒 Antibiotic coverage
  🎒 🎒 DVT prophylaxis
  🎒 🎒 Rehabilitation
  🎒 🎒 Patient education
  🎒 🎒 Postoperative protocol

• Communicate with other services (ie general surgery, neurosurgery, other consultant services)
• Self-study for spine by reading journals, books including but not limited to the Spine Orthopedic Knowledge Update (OKU). A review of one to two chapters of OKU will be held with the entire team during monthly Wed Spine Case Conference.

• OITE review based on spine topics

• Attendance at weekly Grand Rounds and other lectures

• Attendance at monthly M&M

• Daily team rounds

• Understand indications for further imaging (CT scan, MRI, etc)

• Learn to recognize and treat spine emergencies

• Evaluation of consults in a timely manner

• Present cases at weekly spine conference with relevant literature

• Establish basic operating principles including soft tissue handling, surgical approaches to the entire spine, basic spinal decompressions, and insertion of spinal implants such as interbody devices and pedicle screws.

• Supervise and teach medical students with basic skills such as suturing.

All residents are responsible for participation in the care of all inpatients and assisting with the pre-operative workup. Additionally, patients are seen in clinics staffed by faculty in the outpatient facilities of the OSUMC. The residents provide care (non-operative and operative) for patients at the OSUMC Main Campus, the OSUMC East Hospital and the OSU Spine Center.

Upon completion of the two-month rotation it is expected that the residents will:

• Understand spine anatomy: Cervical, Thoracic, and Lumbar.

• Develop an organized approach to evaluation and treatment of spine-injured patients with or without neurological involvement.

• Assess spinal stability/instability.
Develop an organized approach to evaluate and treat outpatients with complaints of back/leg, neck/arm pain as related to traumatic, arthritic, metabolic, inflammatory, neoplastic and genetic (congenital/developmental) spinal disorders (“TAMING mnemonic”).

Have familiarity with adult scoliosis.

Develop an organized approach to spine surgery: pre-op, intra-op and post-op along with improvement in surgical skills.

Understand the rationale and indications for using spinal orthoses: commercial and fabricated.

II. PGY2 Specialty Specific Knowledge and Psychomotor Skills Expectations- Spine

TEAM SPECIFIC:
1. Become proficient in the use of the OSUMC system resources and computerized record keeping for Orthopaedic In-Patients and Out-Patients.
2. Become proficient with respect to OSUMC patient processing procedures for managing Out-Patients, for Surgical Scheduling, and for the Ambulatory Surgery Unit scheduling in order to expedite patient care.
3. Become proficient in the indications for and ordering of radiologic imaging including X-Rays, MRIs, CAT scans, myelography and advanced imaging modalities.
4. Become proficient with respect to requirements of the Pre-Op-Team patient encounter, the Time-Out process, and the Post-Op Review process.
5. Practice punctuality with respect to data entry Pre-Op, dictation of the Operative Procedure, and data entry describing postoperative care, including discharge planning and followup.
6. Become familiar with respect to OSUMC educational resources, and the internet-based resources including Pub Med, EBP (Evidence Based Practice), and Orthopaedic Knowledge On-Line (OKO, OTA.org) portals.
7. Attend the weekly Spine Conference Team and scheduled preop/postop case review.
8. Learn commutation pipelines to major consulting services: Infectious Disease, General Surgery, Plastic Surgery, Neurosurgery, Urology, Neurology, ENT, PM&R/Rehabilitation, etc.
9. Attend weekly program wide Grand Rounds and educational programs (Friday AM).
10. Attend monthly mortality and morbidity conferences.

Clinical Year PGY2:
1. Learn to take and record a detailed present complaint and history relevant to the patient afflicted with a spinal disorder.
2. Learn to process and record a detailed, but efficient past history from each patient.
3. Learn to perform and document a thorough musculoskeletal exam.
4 Learn to process a detailed differential diagnosis relevant to the musculoskeletal history and physical examination
5 Learn to assess the appropriate requirements for relevant laboratory and imaging studies for musculoskeletal complaints
6 Integrate effectively as a team player with other residents and faculty
7 Make rounds with the team twice daily and record relevant observations and lab data in a timely manner
8 Provide one-on-one instruction in musculoskeletal essentials of history and physical examination to the service intern and medical students.
9 Evaluate consults in a timely manner
10 Present weekly Pre-Op cases to team members at Monday AM case reviews and be prepared to comment on each case as required
11 Learn basic surgical operating practice including general operating room discipline, patient positioning, the skills relevant to soft tissue handling, hemostasis and neurological precautions.
12 Accomplish efficient team discipline with respect to integration of duties with junior and senior team members
13 Learn efficient delegation of appropriate duties to physician assistants and PCRN’s.
14 Enhance decision making skills with respect to general orthopaedic elective surgical practice
15 Make twice daily rounds with team members and record notable observations and laboratory findings or delegate same to PA’s or intern with appropriate oversight
16 Enhance analytical abilities in respect to surgical indications
17 Maintain rigorous discipline with respect to preoperative reading, and relevant on-line research in preparation for surgical cases and Review anatomical dissections preoperatively in certain insistences of unusually complex reconstructive spinal procedures.
18 Practice good teaching principles with respect to the educational needs of more junior residents, interns, nurses and other ancillary healthcare professionals.

Clinical Year PGY4:
1 Assume responsibilities as team leader of a spine service and direct delegation of responsibilities among interns, junior residents and PA’s
2 Assume teaching responsibilities consistent with a Chief Resident leadership position, guiding junior residents, interns and nurse practitioners
3 Conduct twice daily rounds and document notable observations and laboratory data or delegate and oversee that responsibility
4 Oversee all aspects of inpatient and outpatient care
5 Provide decision making leadership with regard to surgical indications and appropriate scheduling of cases
6 Oversee the details of surgical preparation including necessary implants, special surgical equipment, and communication with the OR nursing staff the day before surgery or earlier if indicated
7 Provide leadership to team members with respect to surgical preparation including relevant literature on evidence based surgical intervention, and technical aspects of the procedures to be performed.

8 Demonstrate appropriate communication skills with consultants preoperatively and postoperatively.

9 Improve upon surgical skills and teach surgical skills at appropriate levels for junior faculty, interns and medical students.
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Physical Exam Competencies
Spine Service: PGY2 and PGY4

By the end of the PGY2 rotation on the Spine Service, the resident should be able to demonstrate proficiency in the key physical examination tests; The PGY4 rotation is an opportunity to polish these physical examination skills.

OSU ORTHOPAEDICS- CORE LEARNING
PHYSICAL EXAMINATION OF THE SPINE

or

Strains
Sprains
Subluxations
Spondylitis
Spondylosis
Spondylolysis
Spondylolisthesis
Scoliosis

and

Sundry

Serious

Situations

Sustained by

Spinal

Structures
I. Introduction

Neck and back pain with or without radicular or spinal cord involvement are common perplexing problems. Spinal pain is best understood as a symptom complex occurring from many causes. A history that concentrates on pain description and a physical examination which includes making a logical list of causes will be helpful. This lecture will review the critical history and examination factors that compose a complete assessment of patients with neck and low back pain.

II. The Clinical Interview

A. General considerations

B. Eliciting a history

   1. Mode of onset
   2. Pain description
   3. Mechanical vs. non-mechanical pain
   4. Intraspinal vs. extraspinal
   5. Types of pain
      a. local
      b. referred
      c. radicular

C. Physical examination – (see accompanying handout for details)
1. Standing
2. Seated
3. Supine
4. Lateral
5. Prone

D. Synthesis

E. Differential diagnosis- “TIMCAT” (Trauma, infection, metabolic, congenital, Arthritic or tumor)

F. Diagnostic testing

SPINAL DISORDERS – DIFFERENTIAL DIAGNOSIS

1. CONGENITAL LESIONS

A. Primary
   1. Absences
   2. Excesses
   3. Fusions
   4. Dysplasias
   5. Hamartomas

B. Abiotrophies – individuals appear normal for part of life span (eg. hereditary degenerative diseases, myotonia, dystrophia, progeria)

2. ACQUIRED CONDITIONS – (Take note: the first letters of the acquired conditions combine to form the mnemonic “NICE MINI PACET”)?

A. Neurologic
   1. Central
   2. Peripheral

B. Infection
   1. Acute
   2. Chronic
   3. Suppurative
   4. Nonsuppurative

C. Circulatory
   1. Central
   2. Peripheral
   3. Hematogenetic

D. Enzymatic

E. Metabolic
LOW BACK PAIN – PATIENT EVALUATION

Beginning with the broad universe of patients who present to our office with low back pain with or without sciatica, the keystone of clinical diagnosis remains the history and physical examination. The history should allow one to develop a precise subjective assessment of the patient’s pain syndrome. The patient should be asked to describe the character (C) of the pain whether it be sharp, dull, aching, burning or dysesthetic in character. They should describe the location (L) of the pain. Exacerbating (E) and ameliorating (A) phenomena should be defined. It is particularly important in this regard to differentiate back pain that is mechanical in nature from non-mechanical pain which is present at rest. Any pattern of radiation (R) should be defined. In this regard it is important to differentiate referred (sclerotomal) from true radicular (neurotomal) radiation of the pain. The patient should be questioned for any particular time relationships (TR) that the pain syndrome exhibits. Pain that intensifies at night and keeps the patient from obtaining a sound and restful sleep should often alert one to the possibility of a neoplastic condition. Lastly, in performing a thorough review of systems, one should question the patient specifically as to any associated phenomena (AP) that may exist in addition to the pain. We specifically question the patient with regard to the presence or absence of numbness, paresthesias, weakness, a sense of instability in the lower extremities, stiffness, change in bowel or bladder habits, and constitutional symptoms such as fever, chills or weight loss. Any change in the patient’s pattern of appetite, exercise tolerance, sleep habits, or pattern of social and sexual activity may give a clue to an underlying malignancy but much more frequently indicate an underlying depressive disorder. It is also of importance to obtain any history of trauma along with the precise details of the mechanism of injury. One should note by the first letter capitals in parenthesis that they conveniently combine to produce the mnemonic CLEAR TRAP,
this is a convenient memory device which we routinely teach to our medical students and residents.

In performing the physical examination the differential diagnosis should be oriented to separating intraspinal from extraspinal causes of the patient’s pain. Intraspinal causes may be secondary to intradural (intramedullary, extramedullary) or extradural (epidural, foraminal, paraspinal) pathology. Extraspinal causes similarly can be divided into intrapelvic and extrapelvic pathology. In this regard, it is vitally important to examine the abdomen and perform a rectal examination if the patient has not had a recent examination, as well as, consider early gynecologic consultation, if the examination of a female patient leads one to suspect pelvic pathology.

Lastly, we scrupulously observe the patient in the process of performing a physical examination, to detect any non-organic physical signs. We utilize Waddell’s 5 standardized group of tests, specifically performing stimulation tests, distraction, tests, tests to detect tenderness which is superficial and non-anatomic, and regional motor or sensory deficit tests, as well as closely observing the patient for any patterns of over-reaction to the examiner’s maneuvers. If three or more of these non-organic signs are present, we feel it will often be necessary to perform a more detailed psychological evaluation of the patient.

ORTHOPAEDIC PHYSICAL EXAMINATION – Mnemonic

“EVERY SYSTEM GETS MEASURED THEN JOINTS MIGHT NEED RETESTING”

Have the patient undressed:

Except in obvious cases where the problem is very focal, have the patient get into an examining gown. (The knee cannot be properly examined under a rolled-up pant leg; a cavus foot might be secondary to a spinal disorder; knee pain may be referred from the hip).

Equipment:

i.e. Crutches (what type; which side if only one); cane (which hand); braces, splints; night splints or casts; shoe lifts and wedges, etc. Describe any unusual wear in the equipment which might indicate the site of an abnormality.

Stance:

- General symmetry: pelvis and shoulders level; thickness of wood block needed under short leg to level pelvis; is trunk balanced over pelvis; (leaning forward or backward; leaning to one side—measured by a plumb bob from C-7 or occiput); is head, or are arms and legs held in unusual postures, etc.
- Back: Lordosis, scoliosis? Kyphosis? Rotation? (Test by forward bending—“rib hump” – measure height of hump from spinous process to line level with top of hump); Flexibility of abnormal curves
- Abnormal position or rotation of legs and feet
- Trendelenberg test

Gait: (With & without equipment)
- Analyze by phase: i.e., stance phase vs. swing phase; (heel strike, foot, flat, toe off; acceleration; deceleration)
- Smooth or irregular; weight on one leg longer than the other
- Toe walk; heel walk

Measurements:
- ASIS – mm “true leg length” Anterior superior iliac spine to medial tibial malleolus
- Umb – mm “apparent leg length” Umbilicus to medial tibial malleolus
- Thigh: Thigh circumference taken at an arbitrary level above a fixed point generally at the level of the vastus medialis where atrophy commonly begins (e.g. 15 cm. proximal to anterior tibial tubercle or 3 fingers breadth above superior border of the patella for rough approximation)
- Calf: maximum calf circumference
- Others: as indicated (e.g. acromion to olecranon to radial styloid; jaw opening; length of feet, etc.)

Tests: (appropriate to the specific region)
- Knee – McMurray; Slocum
- Hand – Littler
- Hip – Ober; Ely; Trendelenburg; Thomas
- Spine – SLR; crossed SLR; femoral stretch

Joints:
- Description: Size, color warmth, tenderness, synovial thickening, fluid
- Character of motion: e.g. muscle spasm due to pain; muscle spasm due to sudden stretching (i.e. “grab” in cerebral palsy; crepitus; appropriate mechanics (i.e. patella tracks properly)
- ROM; Range of motion (use a goniometer) active and passive as indicated. See following charts for neutral positions from which measures are taken.
- Thomas test
- Ligaments: Laxity in general; specific laxity

Motor Exam:
5 - normal  full ROM against gravity with full resistance
4 - good    full ROM against gravity with some resistance
3 - fair    full ROM against gravity alone
2 - poor    full ROM with gravity eliminated
1 - trace   no motion but muscle contracture
0 - zero nothing

Plus and minus grades are interpolated between the above grades.

Neurological Examination: Sensation, DTR’s pathologic reflexes

REGIONAL EXAMINATION OF THE SPINE

A. Patient Standing
   1. Stance
      a. skin – observe for midline nevus, café-au lait spots, dimples, etc.
      b. check coronal and sagittal curves
      c. shoulder and pelvic obliquity
      d. spasm and list
      e. palpation and percussion – CVAT
      f. range of motion
      g. chest expansion
      h. Shober’s test
      i. Spurling’s test

   2. Gait
      a. heel-and-toe walking
      b. squat
      c. single leg stool ascension
      d. stance and swing phase of gait cycle

B. Patient Seated
   1. Adson’s Maneuver
   2. Shoulder evaluation
   3. Pulses
   4. DTR’s – pathological reflexes

C. Patient Supine
   1. Leg lengths
   2. Extremity circumference
   3. Straight leg raising test - variants
   4. Patrick’s test
   5. Gaenslen’s test
   6. Abdominal exam

D. Patient Lateral
   1. Check hip abductors
   2. Palpate troCHANTERS and sciatic notch
   3. Rectal
   4. Perianal and buttock sensation
   5. Females - consider pelvic

E. Patient Prone
1. Midline palpation
2. Hip rotation
3. Ankle jerks
4. Reverse SLR

DOCTOR WISNESKI’S FAVORITE MNEMONICS

1. MOO-MODE OF ONSET
2. MOI- MECHANISM OF INJURY
3. CLEARTRAP
4. TIMCAT or NICEMINIPACET-DIFF. DX.
5. LMNOP’S OF SPINE FX. MANAGEMENT
   a. L=LOCATION
   b. M= MECHANISM OF INJURY
   c. N= NEUROLOGIC STATUS
   d. O= OPEN OR CLOSED or OTHER FACTORS
   e. P= PERSONALITY OF THE INJURY
   f. S= STABILITY CONCEPTS (ie. The TLISS-THORACOLUMBAR INJURY SEVERITY SCALE)

6. COLER LARD- WISNESKI’S FRACTURE MNEMONIC
   a. C= COMPLICATED OR NOT
   b. O= OPEN OR CLOSED
   c. L= LOCATION-e.g. proximal, distal, epiphyseal, metaphyseal, diaphyseal, etc.
   d. E= EXTENT- e.g. simple, transverse, spiral, comminuted, intra-articular, segmental, etc.

   And for the more senior residents a specific classification system

   e. R= RELATIONSHIP OF FX. FRAGMENTS
      i. L= LENGTHENING OR SHORTENING
      ii. A= ANGULATION
      iii. R= ROTATION
      iv. D= DISPLACEMENT

LARD= “THE FRACTURE FORMULA”- TO TREAT THE FRACTURE REVERSE THE FORMULA TO RESTORE THE NORMAL FORM AND THEN CREATE A PLAN FOR FUNCTIONAL RESTORATION
THE 7 A’S OF EXCELLENCE

A VAILABILITY
A FFABILITY
A BILITY
A PPRECIATE THE NEEDS OF THE PATIENT
A CCOUNTABILITY/AFFORDABILITY
A DVERTISING
A WARENESS OF ONE’S LIMITATIONS

THE 5 E’S

The American Academy of Orthopaedic Surgeons (AAOS) urges orthopaedic surgeons to use patient-focused communication skills during their direct patient encounters.

These include:
- Listening attentively
- Eliciting concerns and calming fears
- Answering questions honestly
- Informing and educating patients about treatment options and the course of care
- Involving patients in decisions concerning their medical care
- Demonstrating sensitivity to patients’ cultural and ethnic diversity
- Showing empathy and respect

ENGAGE, EMPATHY, EVALUATE, EDUCATE & ENLIST
MUSCLE GRADING

0  total paralysis
1  palpable or visible contraction
2  active movement, full range of motion, gravity eliminated
3  active movement, full range of motion, against gravity
4  active movement, full range of motion, against gravity and provides some resistance
5  active movement, full range of motion, against gravity and provides normal resistance
5* muscle able to exert, in examiner’s judgement, sufficient resistance to be considered normal if identifiable inhibiting factors were not present

NT not testable. Patient unable to reliably exert effort or muscle unavailable for testing due to factors such as immobilization, pain on effort or contracture.

ASIA IMPAIRMENT SCALE

☐ A = Complete: No motor or sensory function is preserved in the sacral segments S4-S5.

☐ B = Incomplete: Sensory but not motor function is preserved below the neurological level and includes the sacral segments S4-S5.

☐ C = Incomplete: Motor function is preserved below the neurological level, and more than half of key muscles below the neurological level have a muscle grade less than 3.

☐ D = Incomplete: Motor function is preserved below the neurological level, and at least half of key muscles below the neurological level have a muscle grade of 3 or more.

☐ E = Normal: Motor and sensory function are normal.

CLINICAL SYNDROMES (OPTIONAL)

☐ Central Cord
☐ Brown-Sequard
☐ Anterior Cord
☐ Conus Medullaris
☐ Cauda Equina

Steps in Classification

The following order is recommended in determining the classification of individuals with SCI.

1. Determine sensory levels for right and left sides.
2. Determine motor levels for right and left sides.
   Note: in regions where there is no myotome to test, the motor level is presumed to be the same as the sensory level.
3. Determine the single neurological level.
   This is the lowest segment where motor and sensory function is normal on both sides, and is the most cephalad of the sensory and motor levels determined in steps 1 and 2.
4. Determine whether the injury is Complete or Incomplete (sacral sparing).
   If voluntary anal contraction = No AND all S4-5 sensory scores = 0 AND any anal sensation = No, then injury is COMPLETE. Otherwise injury is incomplete.
5. Determine ASIA Impairment Scale (AIS) Grade:
   Is injury Complete? If YES, AIS=A Record ZPP (For ZPP record lowest dermatome or myotome on each side with some (non-zero score) preservation)
   Is injury motor incomplete? If NO, AIS=B (Yes=voluntary anal contraction OR motor function more than three levels below the motor level on a given side.)
   Are at least half of the key muscles below the (single) neurological level graded 3 or better?
   NO AIS=C
   YES AIS=D
   If sensation and motor function is normal in all segments, AIS=E
   Note: AIS E is used in follow up testing when an individual with a documented SCI has recovered normal function. If at initial testing no deficits are found, the individual is neurologically intact; the ASIA Impairment Scale does not apply.
LRI Emergency Department

C-spine assessment

To be used by trained ED staff in all adult blunt trauma patients if arriving with spinal precautions or if c-spine injury is a concern
Not to be used if injury >48h old or if repeat presentation

Disclaimer:
This is a clinical template; clinicians should use judgment when managing individual patients

Developed by Martin Wiese and John Allen
Version 30 - Jul 08


This assessment was carried out by
Print name                    Signature
Position                       Date           Time completed

Patient details

Is patient stable?

☑ No, as one or more of below
- GCS < 15
- Respiratory rate < 10
- Respiratory rate > 24
- Systolic BP < 90

☑ Yes, as none of the above

Indirect feature triad?

☑ Yes - ALL of the below are present
- Evidence of trauma above clavicles
- Not ambulatory since injury
- Dangerous mechanism (see box 5)

☑ No - none or only some of the above

Dangerous mechanism?

☑ Yes - one of the below
- Fall ≥3 feet or 5 steps
- Axial load to head, e.g. diving
- Crash with motorized recreational vehicle (e.g. quad bike)
- Motor vehicle crash
  - at ≥65mph, rollover or ejection
- Bicycle collision

☑ No - none of the above

Known c-spine problem?

☑ Yes - one or more of the below
- Rheumatoid arthritis
- Ankylosing spondylitis
- Cervical spinal stenosis
- Previous c-spine surgery

☑ No - none of the above

Is ROM-testing safe?

☑ Yes, as one or more of the below
- Ambulatory at any time after injury
- Sitting position in the ED
- Onset of pain not immediate
- Simple rear-end MVC (see box 8)
- No midline c-spine tenderness

☑ No, as none of the above

Simple rear-end MCV?

☑ No, as at least one of the features below
- Pushed into oncoming traffic
- Hit by high speed vehicle
- Rollover
- Hit by bus or large truck

☑ Yes, as none of the above
Definition:
Orthopedic spine surgery is that branch of medicine that deals with the anatomy, physiology and biomechanics of the musculoskeletal system that is exterior to the spinal dura and below the level of the foramen magnum.

Throughout a medical student and resident's education it is vital that the curriculum provides the student with the knowledge and skills to manage patients afflicted with a broad-spectrum of spinal disorders. The specific clinical goals for any such patient include:
1. Prompt diagnosis -- understanding the pathology is the keystone of clinical diagnosis
2. Efficient use of diagnostic studies
3. Individualized treatment -- an understanding of the natural history is the keystone to individualized treatment advice
4. Minimize the use of poorly conceived surgical interventions
5. Provide a route for recovery and return to optimum function --" Individualized treatment and proper patient selection remain the keystone's for maximizing patient outcomes".

Spinal Disorders Didactic Educational Schedule

Basic science curriculum
1. Anatomy and embryology emphasizing spinal and neural development
2. Biomechanics and biomaterials
3. Pathophysiology of degenerative disc disease and related symptoms
4. History and Physical Examination Skills- Differential Diagnosis
5. Spinal imaging: Radiographs, computed tomography, myelography, and magnetic resonance imaging along with interventional techniques
6. Clinical neurophysiology
7. Research methods including outcome assessment, nomenclature and coding
8. Disability evaluation and medical ethics

Conservative Treatment and Rehabilitation
1. Pharmacologic management of spinal patients
2. Diagnostic and therapeutic spinal injections
3. Rehabilitation concepts including functional restoration, manipulative treatments and other passive modalities
4. Rehabilitation of spinal cord injuries including prosthetics and orthotics

Adult Topics
1. Initial evaluation and management of spinal trauma
2. Fractures and dislocations of the cervical spine
3. Fractures and dislocations of the thoracolumbar spine and sacrum
4. Evaluation and treatment of neck pain and cervical disk disease
5. Cervical spondylotic myelopathy and other disorders of the spinal cord
6. Head and neck injuries in athletes
7. Evaluation and treatment of back pain and lumbar degenerative disk disease
8. Spinal stenosis
9. Spondylolisthesis
10. Adult Scoliosis
11. Diagnosis and treatment of neoplastic spinal disease
12. Rheumatoid and rheumatoid variant spondyloarthropathy
13. Spinal infections
14. Management and treatment of osteoporosis and metabolic bone disease affecting the spine
15. Complications of Spine Surgery
16. Spinal instrumentation
17. Spine arthroplasty including motion sparing technologies
18. Spinal arthrodesis including biological enhancement

**Pediatric Topics**

1. Back pain in children and adolescents including Scheuermann's disease
2. Pediatric spine trauma
3. Infantile, Juvenile and Adolescent Idiopathic Scoliosis
4. Congenital and neuromuscular scoliosis
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Spine Reading List

1. Required Readings/Lecture References

AAOS Comprehensive Orthopaedic Review
Chapter 10
Chapter 11
Chapter 12
Chapter 13
Chapter 17
Chapter 27
Chapter 36
Chapter 37
Chapter 38
Chapter 39
Chapter 40
Chapter 41
Chapter 42
Chapter 43
Chapter 44
Chapter 46
Chapter 50
Chapter 65
Chapter 66
Chapter 67
Chapter 68
Chapter 70
Chapter 71
Chapter 72

JAAOS – Required Readings (Note: All are available on Sharepoint site)

- Degenerative Lumbar Scoliosis: Evaluation and Management
- Sagittal Plane Deformity in the Adult Patient
- Neurologic Injury in the Surgical Treatment of Idiopathic Scoliosis: Guidelines for Assessment and Management
- Use of All-pedicle-screw
- Constructs in the Treatment of Adolescent Idiopathic Scoliosis
- Cervical Spondylotic Myelopathy: Diagnosis and Treatment Cervical Radiculopathy
- Surgical Management of Cervical Radiculopathy
• Odontoid Fractures: Update on Management
• Subaxial Cervical Spine Trauma

• Upper Cervical Spine Injuries
• Adverse Events Associated With Anterior Cervical Spine Surgery
• The Role of Fibrin Sealants in Orthopaedic Surgery
• Neurologic Complications After Lumbar Spine Surgery
• Reporting and Notification of Adverse Events in Orthopaedics
• Cauda Equina Syndrome
• Nonsurgical Management of Acute and Chronic Low Back Pain
• Low Back Pain: Pathophysiology and Management
• Lumbar Spinal Stenosis
• Degenerative Lumbar Stenosis: Diagnosis and Management
• Randomized Controlled Trials of the Treatment of Lumbar Disk Herniation: 1983-2007
• Recurrent Lumbar Disk Herniation
• Thoracic Disk Disease: Diagnosis and Treatment
• Postoperative Spinal Wound Infections
• Prophylactic Antibiotics in Orthopaedic Surgery
• Spinal Infections
• Evaluation of the Adult Patient (Aged >40 Years) With a Destructive Bone Lesion
• Metastatic Disease of the Spine
• Preoperative Embolization in the Treatment of Spinal Metastasis
• Acute Management of Spinal Cord Injury
• Advances in the Management of Spinal Cord Injury
• Central Cord Syndrome
• Clearing the Cervical Spine in the Blunt Trauma Patient
• Clearing the Pediatric Cervical Spine Following Injury
• Orthopaedic Management of Ankylosing Spondylitis
• Diffuse Idiopathic Skeletal Hyperostosis: Musculoskeletal Manifestations
• Rheumatoid Arthritis in the Cervical Spine
• Rheumatoid Arthritis of the Cervical Spine
• Adult Isthmic Spondylolisthesis
• Degenerative Lumbar Spondylolisthesis: Trends in Management
• Degenerative Lumbar Scoliosis: Evaluation and Management
• Spondylolysis and Spondylolisthesis in Children and Adolescents: I. Diagnosis, Natural History, and Nonsurgical Management
• Spondylolysis and Spondylolisthesis in Children and Adolescents: II. Surgical Management
• The Effects of Medications on Bone
• Recommendations for Optimal Care of the Fragility Fracture Patient to Reduce the Risk of Future Fracture
• Percutaneous Treatment of Vertebral Body Pathology
• Sacral Fractures
• Thoracolumbar Spine Trauma Classification

• Thoracolumbar Spine Trauma: Evaluation and Classification
• Thoracolumbar Spine Trauma: Principles of Management

2. Optional Readings/Lecture References

• Spine Classics CD (note – all available on Sharepoint site)
• Skeletal Trauma, 3rd Edition
  Vol. 1, Section 1, Chapter 19, Chronic Osteomyelitis, pp. 483 – 506
  Section II, Spine, Chapters 35 – 34, pp. 685 – 1028
  Pelvis, Fx’s of the sacrum, pp. 1031 – 1051

• AAOS Comprehensive Review
• OKU Spine 3 & 4
The Ohio State University
Department of Orthopaedics

Residency Curriculum

Sports Medicine
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  - At the beginning of the rotation
  - At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Sports Medicine Service Information - OSU

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Schedules

During the 2 month rotation, the PGY 4 sports resident will rotate with the attendings that do not have a sports fellow on their service. The goal is for the resident to have a near even split of sports knee and shoulder, thus you will spend time with several of the attendings throughout your work week and 2 months rotation. However, the schedules are flexible to allow the resident to participate in and see unique cases and also cover an attending that is in need of assistance.

Dr Kaeding
Monday am: Administrative / research meetings
Monday noon – 6pm Clinic (Stoneridge)
Tuesday 7 - 3: surgery, OSU east
Tuesday 4 – 7 training room
Wednesday 7 – 3 surgery, OSU east
Wednesday 4 – 7 training room
Thursday 9 – 5 Clinic (Morehouse)
Friday 7 – 5 education conferences, administrative / research meetings

Dr Jones
Monday: OR, OSU east, 7am
Tuesday: clinic, Morehouse
2nd Tuesday – prison cases at Main
Wednesday: clinic, Morehouse
3rd Wednesday – prison cases at Main
Thursday: OR, OSU east, 8am
Friday: academic time, except 3rd Friday: clinic at Morehouse
Dr Flanigan
Monday: office at Morehouse, 7:30 – 5pm
Tuesday: OR, OSU east 7am
   First Tuesday of the month is prison cases at OSU main
Wednesday: office at Morehouse, 7:30 – 5pm
Thursday: OR, OSU east 8am
Friday: academic day or multi-lig cases

Dr Bishop
Monday: Clinic at Martha Morehouse, 7:30 am – 5pm
Tuesday: OR at OSU east, 7am
Wednesday: 1st, 2nd, 5th: Clinic at Stoneridge: 8am
   3rd Wed: Clinic at Morehouse: 8am – 3pm
   4th Wed: Prison cases at OSU Main
Thursday: OR at OSU east, 8am
Friday: 1-3rd Friday: academic time versus add on cases
   4th Friday – Prison cases after conference

Dr Najarian
Monday: OR at OSU east, 7am
Tuesday: Clinic at Care Point Gahanna: 8:30 – 5pm
Wednesday: OR at OSU east, 12-5pm
Thursday: Clinic at Care Point Gahanna: 8:30 am – 5pm
Friday: academic day except 2nd Friday: 1-4 pm clinic at Martha Morehouse
I. **Resident Responsibilities for Patient Care**

- **Rounding:** During the course of your rotation, patients may be admitted before and or after surgery. The expectation is for the resident to know about and round on all inpatient surgical patients, even if you were not involved in the case. This is particularly important on the weekends. As of now, there is a rotating senior resident rounding on the weekends at OSU East. If you are not rounding for the weekend, please sign out all Sports Service patients to the resident rounding. Please have the resident call the attending after rounds to discuss issues and management. IF you go out of town, please arrange coverage for the rounding of inpatients. DO NOT make the attending find someone to round on their patients – take care of this prior to leaving.

- **Orders:** Orders will be done via the current order entry system. There are order sets for UE post-op orders and also for LE and sports cases. Consult MMT on all sports patients that were admitted. Order X-rays in the PACU on all patients that underwent any type of fixation or implant.

- **Dictations:** Most of the sports medicine attendings do dictate their own operative notes. However, there will be times when you are responsible for the dictation. Before the patient leaves the OR, the decision should be made as to who will be responsible for the dictation. You will be expected to dictate at least one operative report and review this with the attending prior to the conclusion of the service.

- **Post-Op Radiographs:** As above – all patients that undergo any type of hardware fixation or implant will get radiographs in the PACU. If it is the last case of the day – DO NOT LEAVE – until you see the x-rays were completed and you view them.

- **Dressings/drains:** If the patients are still in the hospital – all dressings are changed on POD 2 – you do the dressing change and look at the wound – NOT the nurse. If there is a drain – check with that individual attending for when to pull the drain.

- **Discharge:** Most sports medicine patients will be outpatient surgeries. You will be responsible to coordinate with the PA’s filling out the discharge paperwork, instruction sheets, rehab orders and pain medication scripts. Pain medication is unique to each attending and should be discussed with the attending staff for preferences. Discharge paperwork is unique to each attending and you should discuss with the respective attending how they approach this. If there are any inpatients for the service – you will be responsible for the discharge summaries for all inpatients, whether or not you participated in their surgery. Please do this on the day of discharge.

- **Communication:** Many questions will certainly arise and should be addressed on an as needed basis. Constant communication between all members of the health care team is the best way to get an optimal educational experience and provide the best care possible for each patient.

- **Clinic Notes:** Resident should be able to create appropriate notes in EPIC for each patient encounter. They should discuss with each attending how to include the pertinent smart sets/phrases to help.
II. **Resident Level of Responsibility for Patient Care**

- Please understand that patients are real people whom have developed a relationship with the attending physician. They are not limbs or extremities for you to practice surgery skills. Please give the patient and your attending respect by your professionalism, preparation, and diligent hard work. You will in turn learn more and provide confidence in your attending physicians.

- Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

- Residents will be expected to be prepared for clinic and OR

- Thorough knowledge of the surgery, surgical approach, and the reasoning, biomechanics, placement, and technique of the surgical reconstructions/repair and implants used.

- Questions related to any case should be discussed with the attending prior to the case (preferably the day before)

- Residents should see and exam the patient prior to surgery and are EXPECTED to have reviewed all the patient office notes and radiographic studies.

- Lack of preparation will prevent participation

III. **Resident Supervision**

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

IV. **Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.

- Resident should arrange a mid-rotation meeting with the primary attendings that they are working with to discuss performance and assess if goals are being met.
Goals and Objectives
Sports Medicine Rotation – PGY3

I. Core Competency Areas

By the end of the PGY3 rotation in Sports Medicine, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

*By the end of the PGY3 rotation in Sports Medicine, the resident should:*

1. Understand physical therapy modalities in general sports medicine
2. Understand and describe the pertinent clinical anatomy of the shoulder, elbow, knee, leg, ankle, and foot
3. Understand and weigh surgical risk and potential benefit for each patient for each surgical procedure considered.
4. Understand and describe the clinical anatomy and biomechanics of the shoulder
5. Understand and describe the mechanics of the throwing motion
6. Understand and describe the relationship between shoulder instability and rotator cuff tendinitis
7. Understand and describe the relationship between impingement and rotator cuff tears.
8. Describe the pathophysiology and the rationale for non-operative treatment of the following pathologic entities related to the shoulder: rotator cuff tendinitis/tear/impingement, Gleno-humeral instability, adhesive capsulitis
9. Describe the indications and rationale for the following procedures related to the shoulder (describe both open and arthroscopic variations of the procedure, indication for each, and rehabilitation protocol): Rotator cuff repair, subacromial decompression, stabilization procedures, Mumford procedure.
10. Understand the differential diagnosis and treatment for anterior knee pain and patellar instability.
11. Understand the typical history and presentation of Anterior or Posterior Cruciate Ligament Injuries
12. Be familiar with the various types of knee braces
13. Understand the healing potential and current treatment options of meniscal tears and chondral defects.
14. Understand the presentation and pathology of meniscal cysts and discoid menisci
15. Understand the non-operative treatment of patella tendinitis, saphenous neuritis, and MCL sprains
16. Understand the post-operative rehabilitation of meniscal repairs and ACL reconstructions
17. Understand the presentation, evaluation and treatment of common post-operative complications of infection and deep venous thrombosis
18. Understand and describe the pathophysiology of Compartment Syndrome
19. Understand and describe the pathophysiology of Stress Fracture
20. Be familiar with special radiographic examinations of the leg and thigh including MRI, CT, and nuclear medicine studies
21. Discuss the possible etiologies of peroneal nerve injury and recognize the signs of peroneal nerve injury.
22. Understand the pathophysiology and presentation of OCD of the talus
23. Understand the pertinent clinical anatomy and biomechanics of the ankle.
24. Understand the non-operative treatment of the following related to the ankle: Peroneal or posterior tibialis tendinitis, ankle sprains, achilles tendinitis, ankle instability
25. Understand the pathophysiology and presentation of the following related to the ankle: the different types of achilles tendinitis, the different types of ankle sprains, and ankle instability.
26. Understand the presentation and the non-operative treatment of the following related to the elbow: lateral epicondylitis, medial epicondylitis, UCL sprains, ulnar neuritis, olecranon bursitis, and radial head fractures.
27. Understand the pertinent clinical anatomy and biomechanics of the elbow.
28. Understand the pathology and presentation of Panner’s Disease (OCD capitellum) and Valgus extension overload
III. Specialty Specific Psychomotor Skills

By the end of the PGY3 rotation in Sports Medicine, the resident should be able to:

1. Write a concise physical therapy prescription
2. Write a physical therapy prescription for the following related to the shoulder: Rotator cuff tendinitis/tear/impingement, gleno-humeral instability, adhesive capsulitis, rotator cuff repair, subacromial decompression, stabilization procedures, and the Mumford procedure.
3. Perform a physical examination of the shoulder and identify all pertinent anatomic landmarks, quantify range of motion, evaluate glenohumeral stability of the rotator cuff and the AC joint
4. Make a clinical diagnosis of the following: Adhesive capsulitis, anterior instability, posterior instability, rotator cuff tendinitis, impingement syndrome, AC joint arthrosis, AC joint separation and grade, and biceps rupture.
5. Identify all pertinent anatomic landmarks of the knee.
6. Evaluate knee range of motion.
7. Make a clinical diagnosis of the following related to the shoulder: labral tear and rotator cuff tear.
8. Know the indications for and perform the following procedures related to the shoulder: distal clavicle excision and open decompression.
9. Evaluate and grade knee stability in varus/valgus, anterior/posterior, and rotatory directions using appropriate clinical tests
10. Make a clinical diagnosis of the following: ACL tear, PCL tear, MCL injury/tear, LCL injury/tear, chondromalacia patella, patella instability, degenerative arthritis, pre-patella bursitis, tibial plateau fracture, quadriceps rupture, patellar tendon rupture, knee dislocation.
11. Make a clinical diagnosis of the following related to the knee: Posterior lateral corner injuries, meniscal tear, loose body, synovitis, plica syndrome, and VMO avulsion
12. Perform and ORIF patella procedure
13. Diagnose and describe the nonoperative treatment of the following related to the thigh/leg: quadriceps contusion, hamstring tear/strain, quadriceps strain/tear, hip flexor/adductor strain/tear, stress fracture of femur or tibia, shin splints, and gastrocnemius strain/tear.
14. Know the indication for and perform the following procedures related to the knee: diagnostic arthroscopy, arthroscopic debridement, partial meniscectomy, abrasion chondroplasty, and patellar tendon repair.
15. Diagnose and describe the non-operative treatment of exertional compartment syndrome, medial tibial stress syndrome, and stress and traumatic fractures of the tibia and fibula.
16. Diagnose the following related to the Leg and Thigh: Exertional compartment syndrome, medial tibial stress syndrome, shin splints, gastrocnemius strain/tear, and Maissoneuve fracture/syndesmosis injury.
17. Know the indications for and be able to perform the following procedures related to the leg/thigh: Compartment releases: Anterior, lateral, and posterior.
18. Be able to perform an intramedullary nailing of stress fracture of the tibia and femur
19. Know the indications for and perform the following procedures related to the ankle: diagnostic arthroscopy, ORIF Jones fracture.
20. Know the indications for and perform the following procedures related to the elbow: diagnostic arthroscopy, tennis elbow debridement, ORIF fractures, Olecranon bursa debridement/drainage.
21. Perform a physical examination of the elbow and identify all pertinent landmarks.
22. Evaluate range of motion and stability of the elbow joint.
23. Diagnose the following related to the elbow: Lateral epicondylitis, medial epicondylitis, ulnar nerve entrapment, valgus extension overload, UCL incompetence, biceps tendinitis or distal rupture, OCD of capitellum, and Olecranon bursitis.
24. Perform the following procedures related to the elbow: Decompression of the Ulnar nerve, reduction of dislocation, and saline arthrogram.
**Goals and Objectives**  
Sports Medicine Rotation – PGY4

I. Core Competency Areas

*By the end of the PGY4 rotation in Sports Medicine, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.*

**Patient Care**

1. Demonstration of caring and respectful behaviors when interacting with patients and families  
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system  
3. Responsiveness to the individual needs of patients and their families  
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.  
5. Integration of medical facts and clinical data as the basis for diagnosis  
6. Evaluation of risks, benefits, and alternative treatments  
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)  
8. Counsel of patient and family in treatment procedure, options, and potential outcomes  
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health  
10. Understanding of and performance of medical procedures related to treatment plan  
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

**Medical Knowledge**

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately  
2. Investigation of topics as needed for clinical assignments  
3. Understanding and use of basic science principles as related to medical practice

**Practice-Based Learning**

1. Assessment of one’s own patient management skills and ability to make appropriate changes in practice  
2. Integration of evidence from scientific studies in the care of patient’s problems  
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies  
4. Usage of available information technology to obtain and manage information  
5. Willingness to take time to educate students and other health care professionals

**Interpersonal Skills**

1. Fostering of a compassionate, therapeutic relationship with patients and their families  
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

**Professionalism**

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

**Systems-Based Practice**

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

**II. Specialty Specific Knowledge**

*By the end of the PGY4 rotation in Sports Medicine and building upon the experiences from the PGY3 rotation, the resident should:*

Detailed knowledge of the anatomical structures of the shoulder, elbow, knee and ankle as it relates to sports injuries and surgical approaches and reconstructions
Understand anatomy, physiology, and biomechanics as they relate to patients with sports related injuries and disease
Understanding of the incidence, natural history, cause, historical features, exam findings, classification, non-operative and operative management of the following key sports related injuries:
  - ankle sprains
  - turf toe
  - 5th metatarsal fractures
  - lisfranc injuries
  - Achilles pathology
  - Gastroc strains
  - ACL injuries
  - Mensical injuries
  - Osteochondral defects and cartilage injuries
  - Patellofemoral pain syndrome
  - Patella dislocations and instability
  - Quad mechanism injuries
  - Hamstring injuries
  - Stress fractures
  - Multiligament injuries
  - AC sprains and injuries
  - Anterior instability
- Multidirection instability
- Rotator cuff pathology and tears
- SLAP tears
- Throwing injuries
- Ulnar collateral ligament injuries
- Distal biceps ruptures
- Game keepers injury
- Mallet finger
- Jersey finger

4. Understanding of incidence, natural history, cause, historical features, exam findings, classification, and return to play issues with the following sports related injuries:
   - Concussion
   - C-spine injuries
   - Stingers
   - Ankle sprains
   - Muscle injuries
   - Stress fractures

5. Understanding the pre-participation examination and key medical issues in sports medicine:
   - Concussion
   - Ocular trauma
   - Asthma
   - Sudden cardiac death
   - Visceral injury
   - Key infections (Mono, HIV, MRSA, Herpes)
   - Ergogenic aids

6. Be familiar with the various types of knee braces
7. Understand the post-operative protocols for various surgeries and decision making for return to full activities.
8. Understand the presentation, evaluation, and treatment of common post-op complications such as arthrofibrosis.
9. Resident should be able to take a detailed and appropriate injury specific history and formulate a differential of pathology, appropriate tests to order, and appropriate indications for surgery.

III. Specialty Specific Psychomotor Skills

The attendings do NOT expect PGY4 residents to be doing a complex knee (ie meniscal repair, ACL reconstruction) or complex shoulder (ie Bankart repair, RTC repair) skin to skin on their rotation. The goal is to provide learning the skills that will need to be put together for your prison experience as a PGY5, to know how to assist properly and understand the flow and thinking of these complex sports cases.

By the end of the PGY4 rotation in Sports Medicine and building upon the experiences from the PGY3 rotation, the resident should:
1. Have a thorough knowledge of the surgery, surgical approach, and the reasoning, biomechanics, placement, and technique of the surgical reconstructions/repair and implants used.

2. Interpret and synthesize patient history, clinical exam, and diagnostic tests into coherent diagnoses for each condition.

3. Perform procedures necessary for the treatment of athletic-associated injuries, including performing the task with a clear understanding of surgical indications.

4. In particular, the resident should feel confident in their ability to perform the following at the conclusion of their rotation:
   - Perform a diagnostic knee arthroscopy
   - Perform safely a partial meniscectomy
   - Perform a microfracture
   - Perform graft harvest and preparation in ACL Surgery
   - Doing a notchplasty in ACL surgery
   - Creation of bony tunnels for ACL reconstruction
   - Performing an Achilles repair, patella tendon, or quad tendon repair
   - Perform a diagnostic shoulder arthroscopy
   - Perform a biceps tenotomy
   - Placement of suture anchors in instability or SLAP lesions
   - Passage of suture through the capsule and or labrum
   - Tying arthroscopic suture knot
   - Perform a subacromial decompression
   - Performing a mumford
   - Placement of suture anchors in Rotator cuff tears
   - Understand rotator cuff repair suture management
   - First assist and anticipate all steps of an arthroscopic RCR
Physical Exam Competencies
Sports Medicine Service: PGY3 and PGY4

By the end of the PGY 4 rotation in sports medicine, the resident should be able to demonstrate proficiency in the key physical examination tests

Knee Exam:
- Normal examination of the knee, including:
  - Inspection
    - Gait
    - Effusion
    - Lower extremity alignment
  - Palpation
    - Medial/lateral joint line tenderness
    - Crepitus
  - Range of motion
    - Flexion/extension
- Neurovascular testing

Special Tests:
- Patellofemoral Tests:
  - Q angle
  - PF apprehension
  - PF grind/compression
  - PF quadrants
  - “J” sign
  - Patellar tilt test
- Ligament Stability Tests:
  - Valgus stress test
  - Varus stress test
  - Lachman test
  - Anterior drawer
  - Posterior drawer
  - Posterior sag
  - Quadriceps-active test
- Meniscal Tests:
  - McMurray’s test
  - Apley compression test
  - Deep knee bend
  - Pivot shift
- Other Tests:
  - Palpable fluid wave
  - Ballotable patella
  - Wilson’s test

Shoulder exam:
- Normal examination of the shoulder, including:
  - Inspection: atrophy, deformity, skin changes, prior scars, etc.
Palpation:
- AC joint
- Greater tuberosity
- Bicipital groove
- Coracoid process

Range of motion:
- Internal/external rotation
- Forward elevation
- Abduction/adduction

Neurovascular testing

Special Tests:

Instability Testing:
- Load and shift test
- Apprehension test
- Relocation sign
- Posterior apprehension sign
- Sulcus sign (with and without external rotation)
- Generalized ligamentous laxity

Rotator Cuff Testing:
- Jobe test (empty can test)
- External rotation “lag” sign
- Hornblower’s sign
- Resisted external rotation at the side and at 90° abduction
- Lift off
- Belly press
- Drop arm

Impingement Testing:
- Neer/Impingement sign
- Hawkin’s test
- Neer Impingement test

Other Tests:
- Cross body adduction
- Yergason’s test
- Speed’s test
- Active compression (O’brien’s test)
- Scapular winging/scapular stabilization
- Adson’s test (thoracic outlet syndrome)
- Spurling’s test (cervical spine involvement)
Surgical Competencies
Sports Medicine Service: PGY3

By the end of the PGY3 rotation in Sports Medicine, the resident should be able to perform the following procedures:

1. Perform a diagnostic knee arthroscopy
2. Perform safely a partial meniscectomy
3. Perform a microfracture
4. Perform graft harvest and preparation in ACL Surgery
5. Doing a notchplasty in ACL surgery
6. Creation of bony tunnels for ACL reconstruction
7. Performing an Achilles repair, patella tendon, or quad tendon repair
8. Perform a diagnostic shoulder arthroscopy
9. Perform a biceps tenotomy
10. Placement of suture anchors in instability or SLAP lesions
11. Passage of suture through the capsule and or labrum
12. Tying arthroscopic suture knot
13. Perform a subacromial decompression
14. Performing a mumford
15. Placement of suture anchors in Rotator cuff tears
16. Understand rotator cuff repair suture management
17. First assist and anticipate all steps of an arthroscopic RCR
The Ohio State University  
Department of Orthopaedics  
Orthopaedic Residency Program  

**Surgical Competencies**  
*Sports Medicine Service: PGY4*

*By the end of the PGY4 rotation in Sports Medicine, the resident should be able to perform the following procedures:*

1. Perform a diagnostic knee arthroscopy  
2. Perform safely a partial meniscectomy  
3. Perform a microfracture  
4. Perform graft harvest and preparation in ACL Surgery  
5. Doing a notchplasty in ACL surgery  
6. Creation of bony tunnels for ACL reconstruction  
7. Performing an Achilles repair, patella tendon, or quad tendon repair  
8. Perform a diagnostic shoulder arthroscopy  
9. Perform a biceps tenotomy  
10. Placement of suture anchors in instability or SLAP lesions  
11. Passage of suture through the capsule and or labrum  
12. Tying arthroscopic suture knot  
13. Perform a subacromial decompression  
14. Performing a mumford  
15. Placement of suture anchors in Rotator cuff tears  
16. Understand rotator cuff repair suture management  
17. First assist and anticipate all steps of an arthroscopic RCR
Sports Medicine Reading Lists – PGY4

1) Hoppenfeld’s Orthopedic Surgical Anatomy
2) Deleze and Drez Sports Medicine
3) Cambell’s operative orthopaedics
4) Miller’s Techniques in Arthroscopy
5) OKU Sports Medicine Update 3
About This Curriculum

• It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  
  o At the beginning of the rotation
  o At the conclusion of the rotation

• Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

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Schedule

- **OR Days (OSU main)**
  Residents assigned to the OR are expected to be in the room before 7:30am on Mondays and Tuesdays and by 8:30am on Thursdays. The schedule for Friday will vary depending on the resident conference schedule. Dr Lakatos covers the trauma room on Wednesday and will be covered by the resident on the Spine Service.

  Drs Phieffer, Van Hoff, and Quackenbush rotate on a three week schedule between the Trauma room at OSU Main, OSU East, and week of clinic/outreach/education/research. This schedule is available usually 2 months in advance.

- **OR Days (OSU East)**
  Currently the Orthopaedic Trauma PAs will be covering the trauma cases at OSU East hospital. Residents are welcome to assist at East as long as there is adequate coverage at OSU Main. Discuss this with the OSU Main and East attendings prior to going to East

- **Clinic Days**
  Drs Phieffer, Van Hoff, and Quackenbush have clinic all day on Wednesday. The second year and Chief residents are expected to attend.

  Dr. Lakatos has clinic on Monday and Friday's. His clinic will be covered by the Spine resident.
Chief Resident Rotation (2 month rotation)

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Second Year rotation (2 month rotation)

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Intern Rotation

| Intern | Floor work /consults OR if time | Floor work /consults OR if time | Floor work /consults OR if time | Floor work /consults OR if time | Academic Day PM floor work / consults vs. OR |

Conferences

- **Thursday Morning Conference**
  Every Thursday from 6:30am until 8am. This is an educational conference attending by the trauma service and the other OSU Main services, including Tumor, Prison, and Hand. This conference will follow a rotating schedule.

  1st **Thursday**: Resident fracture conference/OITE review
  This conference will focus on a more in-depth study of specific fractures with an emphasis on correct diagnosis, classification, workup/testing, operative care, and postoperative care/outcomes. The Chief resident will prepare this conference. OITE review may be substituted at the beginning of the academic year. The attendings have their faculty meeting this Thursday and will not be present.

  2nd **Thursday**: Case review- a review of all cases performed by Trauma attendings from the past two weeks. Each case will have a brief presentation and discussion. The Chief resident will assign the cases to cover to each resident on service.

  3rd **Thursday**: This will be a faculty driven conference. It may be a fracture related discussion or lecture. It may also be a journal article review. Individual topics will be announced at the conference the prior week.

  4th **Thursday**: Case review conference  (same as 2nd Thursday)

- **Daily Conference**
All residents, with specific exceptions, are expected to attend daily signout rounds. This will occur at 0630 in the conference room in the house-staff area except on Thursdays where it will be done on the 4th floor Cramblett Hall Resident Library.
OSUMC Department of Orthopaedics  
Handoff Policy

Consults

During the day (from 7am – 6pm), all consults will be seen by the Orthopaedic Surgery Intern on the trauma service. The consult should then be staffed with the PGY-2 on the trauma service and a plan formulated with the assistance of the trauma chief. Day consults will be staffed through the on call attending, only after all appropriate imaging and laboratory studies have been completed. It is expected that all consult patients have a complete consult history and physical completed and placed on the chart (or dictated). The orthopaedic trauma intern is responsible for updating the list daily, adding all consults and patient information as they arise. As patients are assigned to different orthopaedic surgery services (e.g. if patient to be placed on the oncology or prison service), at a minimum, the junior resident on that service should be notified of the consult.

Overnight consults will be seen by the on-call/night float resident and will be staffed with the on-call attending once a plan has been formulated. The chief resident on-call should be contacted for each consult to allow for resident to resident teaching if the junior is unable to formulate a plan, is unsure of the best course of action, or if the consult requires surgical intervention. If a patient will be going to the OR, the junior resident, after consulting with the chief resident and attending, must book the case, mark and consent patient, and make sure all necessary equipment is available (the chief and/or attending will help with appropriate instrumentation). The chief is the ultimate responsible individual for ensuring the proper instrumentation is available.

Fracture Conference

It is a requirement that residents attend the daily AM trauma fracture conference to receive handoff for their respective service. If the resident’s particular service responsibility precludes participation in the fracture conference (e.g. on Tuesdays, tumor has indications conference at the same time), communication between that resident and the on-call/night float person needs to take place to discuss any overnight issues.

Evening Hand-Off

All patients MUST be added to the list daily, which includes patient name, mrn, location, service, diagnosis, surgery, medical issues. Each service is expected to sign-out to the nightfloat resident/resident on-call each night. At a minimum, an email or a telephone call should occur to discuss all patients on the list. Pertinent information to include what surgery was/is to be performed, any medical concerns, all follow-up information (e.g. Hb level, POC), and what to do given particular circumstances (e.g. if Hb drops to 6, transfuse, etc). All residents should attempt to
manage the patients on their service and not leave excess work for the night float resident to do (e.g. if a patient finished surgery at 10am, the resident on service should be able to do the POC before leaving for the day). However, the night float resident will complete all tasks signed out to them by their fellow residents (e.g. pre-op a patient for surgery, etc).


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Department of Orthopaedics
Orthopaedic Residency Program

Delineation of Resident Responsibilities:
Orthopaedic Trauma Service: PGY2 and PGY5

I. Resident Responsibilities for Patient Care

Patient Care

• Rounds
Residents are expected to have seen and written a note on all patients on the trauma service each day before going to the OR or clinic. All consults need to be seen the same day as the consult is placed. All patients need to be seen on a DAILY basis unless the attending responsible for the patient determines that they can be seen less frequently. Attending rounds will be done after the daily Xray conference and before the beginning of cases. Weekend rounds on patients must be completed before 8am to allow for patient care issues with regards to timely orders, nursing and ancillary staff issues whether or not cases are posted.

On Friday’s after conference, the PGY2, interns and Trauma PAs on the service will round with the on call senior prior to weekend call to improve patient care pass off.

• Orders
All orders will be done via the CAPI order entry system. Most major operative and trauma diagnoses have their own order set. Please use these sets, as they represent the usual way of doing things on the service. Weight bearing status of all patients should be recorded in the PT consult and the nursing orders. Refer to specific sheets given. IF IN DOUBT, ASK!

• Discharge
All patients discharged from the service will have the electronic discharge instructions (EDI) completed in full. This is a detailed account of the discharge plan. If you are not sure of the plan, ASK. No handwritten instructions are acceptable. Please be complete and fill in the medications. This is the job of the resident. Please be complete and include all necessary information.
  • Weight bearing status
  • Name the affected extremity (s)
  • ROM permitted of joints, restrictions, etc
  • Braces such as knee immobilizer, fracture boot, etc and particulars about the brace that need to be addresses
  • Postoperative wound/dressing care
  • DVT prophylaxis if indicated

By not including all of the necessary information delays the patients care and increases outpatient phone calls to the office.
Discharge summaries should be done expediently after discharge. This is a record of the admission, and should include a complete history, pertinent physical exam, reason for the admission, and a summary of what was done. Include dates for all surgical procedures. Follow-up specifics can be provided in the EDI.

In general, patients will follow-up in 10-14 days for a wound check. Patients that are discharged with an external fixator will return within the next week to be taught pin care. Pin care teaching while in the hospital is the exception.

Enough pain medication should be written at discharge in order for the patient to make it to their first follow-up visit. The usual protocol is two weeks of Percocet (#120) so that they have enough to get to their first postop appointment.

- **Documentation**

If you didn’t write it down, you didn’t do it.

**Daily notes:** Time and date all notes. Justify your actions i.e. if you order blood, note that the patient is anemic. Be complete, and note all pertinent diagnoses. Record neurologic exam pre/post-op, record lab values pre/post-op, medications (pain meds, antibiotics and DVT prophylaxis). Use the standardized notes for all trauma patients. Be sure to **sign your name** and then **print your name** and pager number.

**Brief OP Notes:** Must include a plan and the weight bearing status of the patient and discharge information. Use the standardized forms available in OR 20.

**Operative dictation:** Before the patient leaves the room, a decision on who will dictate the case will be decided. If you are dictating, list the procedure as listed on the OR record, and mention the name of the attending.

**Consults:** This must include a complete history, and a thorough musculoskeletal exam. Please identify the orthopaedic attending, the plan, and the weightbearing status of the patient on the consult.

**H&P:** This must include a complete history, general exam, thorough musculoskeletal exam, a plan, and who the attending is. If a female patient is going to surgery ask about possible pregnancy and always order a UPT.

**Role of the PCRM**

The PCRM on the service can be a great help, but he/she does not function as a junior resident or a medical student. He/she is responsible for cutting red tape in planning discharges, obtaining consults, moving patient through the system and managing outpatient issues. He/she is an integral and valuable member of the team and should be treated as such. Each morning, one member of the team should call/page to update him/her on the progress of all orthopaedics patients and anticipated problems during the day. The PCRM can solve many problems on the floor during the day, but can’t do it in a vacuum.
Pearls

Emergency Department Films
Radiographic examination of injuries in the ED require 90 degree views of the fracture, and must show a joint above/below the injury. It is often helpful to pull traction on the injured part to obtain the best quality films for preoperative planning. If outside films are inadequate, repeat them. If films obtained by the ED are inadequate, repeat them or get the additional films that you need.

External fixator patients
External fixator patients will have a dressing placed on their pins in the OR. In general, pin care should not be ordered during the hospital care (with specific exceptions). Pin care teaching will be done in the clinic at the next clinic day. If pin care is ordered, it should be ½ strength NS/peroxide bid. Discuss this with the attending of record before ordering.

Posture
Please pay particular attention to the position of a patient’s ankle and knee. Ankles and subtalar joints should be splinted in neutral to prevent equinus contracture. Inadequate splints will be replaced. Legs should be elevated with pillows under the calf (so as not to put pressure on the heel), not under the knee. This results in a knee flexion contracture.

Calcaneus fractures
Patients who are diagnosed with a calcaneus fracture in the ED should have as part of their evaluation: a lateral/axial view of the injured foot, 3 views of the injured ankle and comparison views of the other side, and an axial and coronal CT scan of the calcaneus (no reconstructions). Patients should be put into a well-padded posterior splint with the ankle in neutral position.

Pilon fractures
Patients who are diagnosed with a pilon fracture in the ED should have 3 views of the injured ankle, and in general, an axial CT scan of the ankle. Patients with shortening of the leg should be treated initially with a spanning external fixator. Radiographic studies (plain films of the ankle, and CT scan) should be obtained AFTER placement of the external fixator.

Plateau fractures
Patients who are diagnosed with a plateau fracture in the ED should have an AP, oblique, and lateral views of the injured knee, and in general, an axial CT scan of the knee. Patients with shortening of the leg (IV, V, VI) should be treated initially with a spanning external fixator in the OR. Radiographic studies should be obtained AFTER placement of the external fixator. Patients with a unicondylar fracture can be splinted in a knee immobilizer.

Pelvic ring injuries
Pelvic ring injuries are identified on the trauma AP pelvis film. Pelvic ring injuries also require an acceptable inlet and outlet view of the pelvis and a CT scan of the entire pelvis. Order CT scans with 3mm cuts. All trauma patients with a pelvic
ring injury should have a UA sent and checked for # of RBCs. If RBCs > 25, a cystogram should be ordered to r/o an occult bladder injury.

Acetabulum fractures
Acetabulum fractures are identified in the initial trauma AP pelvis film. These fractures also require an acceptable set of Judet views of the pelvis. A CT scan of the ENTIRE pelvis should also be obtained with 3 mm cuts through the acetabulum. The definitive CT scan and plain films should be obtained after a hip dislocation has been reduced.

Hip fractures
Hip fractures, whether femoral neck or intertrochanteric, should be evaluated with an AP pelvis film, an AP and shoot-through lateral of the affected hip, and an internal rotation view of the affected hip. Some patients need the ortho resident to pull for traction view. In general, we are trying to have all geriatric fracture patients (Hip fractures, proximal humerus, etc) transferred to OSU East hospital as part of our Geriatric Fracture service. These patients will get admitted to the MMT service at East. Coordination with the resident at OSU East is important as well as informing Tom Freeman. If the patient stays at OSU Main and will require a medical consult, please obtain it early, as failure to do so will result in a delay in definitive treatment. Use the Hospitalist service at Main.

Open fractures
Open fractures are an orthopaedic emergency, and should be treated as such. In the ED, the wound should be examined, grossly irrigated, dressed with a betadine dressing, and splinted. IV antibiotics and tetanus should be given in the ED. Every effort should be made to get the patient to the OR in an expedient manner.

Geriatic Fractures
There is a geriatric fracture service at OSU East Hospitals. We are working to have these patients taken directly to OSU East and bypassing OSU Main. However, as these patients continue to arrive at OSU Main, we need to identify those that are capable of being transferred. The on-call resident needs to discuss with the Emergency Department about the possibility of transfer. These patients will be admitted to the Geriatric Fracture Service, which is covered by MMT at East.

Fractures discharged from the ED
Patients with fractures discharged from the ED can follow-up in the ortho trauma fracture clinic (we have clinics on Wed and often on Tuesday and Friday as well). Do not specify an attending unless told to do so, so that they can be placed in the first available time slot. During daytime hours please call Greta Slater directly at 293-6142 to coordinate a time PRIOR to the pts discharge. If after hours, please get the best phone number from the patient to be reached and email Greta Slater, Pam Hoehn and Phieffer/Quackenbush/Vanhoff and give the pertinent pt details, pt MRN, pt best contact phone number to facilitate patient follow-up.
II. **Resident Level of Responsibility for Patient Care**

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

III. **Resident Supervision**

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

IV. **Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Goals and Objectives
Orthopaedic Trauma Rotation: PGY1

General Rotation Information:

The Orthopaedic rotation is intended to provide the PGY1 orthopaedic resident with an introduction to the diagnosis and management of orthopaedic trauma and related disorders. The focus of this rotation is on developing the proper thought processes and the basics of history and physical examination as well as the general principles of musculoskeletal diseases, pathology, and their manifestation. Emphasis will be placed on the initial history, physical examination, imaging and treatment of patients with skeletal injury. The inpatient management of orthopaedic trauma patients as well as the coordination of care and consultants will be a primary area of focus. Introduction to definitive methods of care will be introduced in a graded fashion. This rotation is directed by Dr. Phieffer with assistance by Drs Lakatos, Van Hoff, and Quackenbush.

I. Core Competency Areas

By the end of the PGY1 rotation in Orthopaedic Trauma, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families.
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system.
3. Responsiveness to the individual needs of patients and their families.
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis.
7. Implementation of a complete and effective treatment plan (operative and non-operative).
8. Counsel of patient and family in treatment procedure, options, and potential outcomes.
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health.
11. Ability to work well with entire team of health care professionals and be involved in care of the patient.

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately.
2. Investigation of topics as needed for clinical assignments.
3. Understanding and use of basic science principles as related to medical practice.

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice.
2. Integration of evidence from scientific studies in the care of patient’s problems.
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies.
4. Usage of available information technology to obtain and manage information.
5. Willingness to take time to educate students and other health care professionals.

**Interpersonal Skills**

1. Fostering of a compassionate, therapeutic relationship with patients and their families.
2. Ability to listen to patients and include them in treatment decisions.
3. Ability to listen to information provided by other members of the health care team.

**Professionalism**

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients.
2. Demonstration of an ethically sound practice of medicine.
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients.

**Systems-Based Practice**

1. Knowledge of how to provide cost-effective care.
2. Willingness to advocate for patients within the health care system.
3. Referral of patient to appropriate practitioners and agencies within the health care system.
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care.

**II. Specialty Specific Knowledge**

*By the end of the PGY1 rotation in Orthopaedic Trauma, the resident should:*

1. Understand the diagnosis and management of orthopaedic trauma and related disorders.
2. Understand and develop a systematic approach to the evaluation of trauma patients in all areas of the hospital, including the emergency department, in-patient wards, and clinic.
3. Develop the proper thought processes in regard to order of care of the multiply injured patient.
4. Understand the pathoanatomy of long bone fractures including recognition of associated injuries, classification of fractures, and temporary stabilization.
5. Be able to classify and correctly workup periarticular injuries including pilon, plateau, distal femur, distal radius, elbow and shoulder fractures.
6. Be able to classify and correctly workup pelvis and acetabular injuries.
7. Understand the decision to advance from splint stabilization to operate stabilization via external fixator for periarticular injuries.
8. Understand the treatment methods for major joint dislocations, including when to order adjunctive tests including angiograms.
10. Manage the patients on the orthopaedic trauma service under the direction of the attending physician and senior resident.
11. Effectively communicate the orthopaedic needs of patients to consulting services.
12. Coordinate the care of our patients with consulting services.
III. Specialty Specific Psychomotor Skills

By the end of the PGY1 rotation in Orthopaedic Trauma, the resident should be able to:

1. Evaluate traumatic fractures, dislocations, and injuries in the emergency department.
2. Demonstrate effective patient management skills, in both the inpatient and outpatient settings.
3. Demonstrate appropriate management of major joint dislocations.
4. Demonstrate appropriate reduction techniques for basic fractures, including distal radius, forearm, humerus, tibial shaft, ankle, and foot fractures.
5. Apply proper splinting techniques for fractures.
6. Advance understanding of appropriate patient positioning and operating room setup.
7. Advance basic surgical techniques, including suturing and wound management.
Goals and Objectives
Orthopaedic Trauma Rotation: PGY2

General Rotation Information:

The Orthopaedic rotation is intended to provide the PGY2 orthopaedic resident with an introduction to the diagnosis and management of orthopaedic trauma and related disorders. The focus of this rotation is on developing the proper thought processes and the basics of history and physical examination as well as the general principles of musculoskeletal diseases, pathology, and their manifestation. Emphasis will be placed on the initial history, physical examination, imaging and treatment of patients with skeletal injury. Introduction to definitive methods of care will be introduced in a graded fashion. This rotation is directed by Dr. Phieffer with assistance by Drs Lakatos, Van Hoff, and Quackenbush.

I. Core Competency Areas

By the end of the PGY2 rotation in Orthopaedic Trauma, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills
1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism
1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

Systems-Based Practice
1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY2 rotation in Orthopaedic Trauma, the resident should:

1. Understand the diagnosis and management of orthopaedic trauma and related disorders.
2. Understand and develop a systematic approach to the evaluation of trauma patients in all areas of the hospital, including the emergency department, in-patient wards, and clinic.
3. Develop the proper thought processes in regard to order of care of the multiply injured patient.
4. Understand the pathoanatomy of long bone fractures including recognition of associated injuries, classification of fractures, and temporary stabilization.
5. Be able to classify and correctly workup periarticular injuries including pilon, plateau, distal femur, distal radius, elbow and shoulder fractures
6. Be able to classify and correctly workup pelvis and acetabular injuries
7. Understand the decision to advance from splint stabilization to operate stabilization via external fixator for periarticular injuries.
8. Understand the treatment methods for major joint dislocations, including when to order adjunctive tests including angiograms.
9. Recognize orthopedic surgical emergencies
III. Specialty Specific Psychomotor Skills

*By the end of the PGY2 rotation in Orthopaedic Trauma, the resident should be able to:*

1. Evaluate traumatic fractures, dislocations, and injuries in the emergency department.
2. Demonstrate effective patient management skills, in both the inpatient and outpatient settings.
3. Demonstrate appropriate management of major joint dislocations.
4. Demonstrate appropriate reduction techniques for basic fractures, including distal radius, forearm, humerus, tibial shaft, ankle, and foot fractures.
5. Apply proper splinting techniques for fractures.
6. Advance your skill in the treatment of basic fractures including antegrade femoral and tibial nailing, retrograde femoral nailing, ORIF of distal radius, both bone forearm, and ankle fractures.
7. Understand and apply proper techniques in the placement of external fixators that span the knee and those that span the ankle.
Goals and Objectives
Orthopaedic Trauma Rotation: PGY5

General Rotation Information

The PGY5 Orthopaedic Trauma rotation is built upon the knowledge and skills acquired in the previous Trauma rotations. The resident at the end of the PGY5 rotation, should be able to perform all of the Goals and Objectives of the PGY2 rotation in addition to the advanced Goals and Objectives listed below. This rotation is directed by Dr. Phieffer with assistance by Drs Lakatos, Van Hoff, and Quackenbush.

I. Core Competency Areas

*By the end of the PGY5 rotation in Orthopaedic Trauma, the resident should demonstrate further progress towards obtaining excellence in each of the following core competency areas.*

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

**Interpersonal Skills**

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

**Professionalism**

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients

**Systems-Based Practice**

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

### II. Specialty Specific Knowledge

*By the end of the PGY5 rotation in Orthopaedic Trauma and building upon the experiences from the PGY2 rotation, the resident should:*

1. Know the pathoanatomy of most skeletal injury i.e. fractures and dislocations of the shoulder, arm, elbow, forearm, wrist, pelvis, acetabulum, femur, knee, ankle and foot.
2. Know the classification of most skeletal injury i.e. fractures and dislocations of the shoulder, arm, elbow, forearm, wrist, pelvis, acetabulum, femur, knee, ankle and foot.
3. Understand the priorities for initial management, triage, and initial stabilization of skeletal injuries in the multiply injured patient.
4. Know the indications for various methods of operative and non-operative treatment of various injuries and learn to use clinical data to decide on treatment method.
5. Know the complications of each injury.
6. Understand the post-operative management of trauma patients.

### III. Specialty Specific Psychomotor Skills

*By the end of the PGY5 rotation in Orthopaedic Trauma and building upon the experiences from the PGY2 rotation, the resident should be able to:*

1. Evaluate traumatic fractures, dislocations, and injuries in the emergency department.
2. Determine the classification of such injuries.
3. Discuss the treatment options, priorities, and initially stabilize musculoskeletal trauma.
4. Become competent in the definitive management of basic fractures i.e. long bone shaft fractures, hip fractures, ankle fractures, and fractures of the distal radius.
5. Demonstrate advancing competence in the management of pelvis, acetabulum, and peri-articular fractures.
6. Show advanced knowledge in the use of external fixation for definitive and temporary stabilization.
7. Be responsible for the surgical management of the orthopaedic trauma patient when on call.
8. Demonstrate the ability to coordinate the care of a large musculoskeletal trauma service.
Physical Exam Competencies
Orthopaedic Trauma Service: PGY1, 2, and 5

☐ Orthopaedic trauma general survey:
   Secondary survey to be completed both in the trauma bay after the primary survey as well
   as the following day to look for missed injuries
   - Complete palpation of all 4 extremities
   - Pelvic compression / stress testing
   - ROM of all major joints
   - Neurovascular assessment of all 4 extremities

☐ Screening neurologic examination:
   o Differentiate median/radial/ulnar nerve injury in the upper extremity
   o Assess axillary nerve function
   o Differentiate sciatic/tibial/deep peroneal/superficial peroneal nerve injury in the
     lower extremity
   o Sensory pattern of the lateral femoral cutaneous nerve

☐ Range of motion: understand the normal ROM of the major joints for assessment after
   injury or after subsequent fixation
   o Shoulder
   o Elbow
   o Wrist/hand
   o Hip
   o Knee
   o Ankle

☐ Compartment syndrome:
   o Understand the physical examination findings of a compartment syndrome
   o Demonstrate use of the Stryker needle for compartment pressure monitoring

☐ Ankle-Brachial Index (ABI):
   o Understand the indications for use of an ABI in the trauma setting
   o Demonstrate proficiency in obtaining an ABI
By the end of the PGY2 rotation in Orthopaedic Trauma, the resident should be able to perform the following procedures:

1. Evaluate traumatic fractures, dislocations, and injuries in the emergency department.
2. Demonstrate effective patient management skills, in both the inpatient and outpatient settings.
3. Demonstrate appropriate management of major joint dislocations.
4. Demonstrate appropriate reduction techniques for basic fractures, including distal radius, forearm, humerus, tibial shaft, ankle, and foot fractures.
5. Apply proper splinting techniques for fractures.
6. Advance your skill in the treatment of basic fractures including antegrade femoral and tibial nailing, retrograde femoral nailing, ORIF of distal radius, both bone forearm, and ankle fractures.
7. Understand and apply proper techniques in the placement of external fixators that span the knee and those that span the ankle.
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Surgical Competencies
Orthopaedic Trauma: PGY5

By the end of the PGY5 rotation in Orthopaedic Trauma and building upon the experiences from the PGY2 rotation, the resident should be able to:

1. Evaluate traumatic fractures, dislocations, and injuries in the emergency department.
2. Determine the classification of such injuries.
3. Discuss the treatment options, priorities, and initially stabilize musculoskeletal trauma.
4. Become competent in the definitive management of basic fractures i.e. long bone shaft fractures, hip fractures, ankle fractures, and fractures of the distal radius.
5. Demonstrate advancing competence in the management of pelvis, acetabulum, and peri-articular fractures.
6. Show advanced knowledge in the use of external fixation for definitive and temporary stabilization.
7. Be responsible for the surgical management of the orthopaedic trauma patient when on call.
8. Demonstrate the ability to coordinate the care of a large musculoskeletal trauma service.
The Ohio State University  
Department of Orthopaedics  
Orthopaedic Residency Program  

*Orthopaedic Trauma Reading List*

Textbook References:  
1) Skeletal Trauma in Adults and Children 3rd Edition. Brown, Jupiter, Levine, Trafford (Eds)  
2) Campbell’s Operative Orthopaedics. 10th edition. Canale (Ed)  
3) AO Principles of Fracture Management. Colton, Fernandez Doll’Oca, Holz, Kellam, Ochsner (Eds)

**Open Fractures/Damage Control/Trauma**  
1) Soft Tissue Injury Volgas, David OKU 3 Chapter 7 59-64  
2) Pathophysiology of the Trauma patient Menth-Chiari, Wolfgang et al. OKU Trauma 3 Chapter 11 93-106  
4) Compartment Monitoring in Tibial Fractures McQueen and Court-Brown. JBJS-British Vol 78-B No.1, Jan 1996  99-104  

**Fracture Healing**  
8) Evolution of the Internal Fixation of Long Bone Fractures Perren, Stephen JBJS-Br; 84-B: November 2002 1093-1110  
9) Biomechanics of Locked Plates and Screws Egol et al JOT Volume 18, Number 8 Sept 2004 488-493  
10) Reduction With Plates; from Planning and Reduction Technique in Fracture Surgery Mast, Jakob, Ganz (eds) pp48-129  
11) The Science of Fracture Healing Einhorn, Thomas JOT Volume 19, Number 10 Supplement, November/December 2005 p S4-S6  
12) Overview of Biologics Watson, J Tracy JOT Volume 19, Number 10 Supplement, November/December 2005 S14-S16  
13) Bone Morphogenic Protein Science and Studies Lane, Joseph JOT Volume 19, Number 10 Supplement November/December 2005 S17-S22  
15) rBMP-2 for Treatment of Open Tibial Fractures BESTT Study Group JBJS 84-A, Number 12, December 2002, 2123-2134

**Fractures of the Foot**  


19) Operative Treatment in 120 Displaced Intraarticular Calcaneal Fractures Sanders et al. CORR Number 290 pp87-95


**Fractures of the Ankle and Pilon**


**Fractures of the Tibial Diaphysis**

24) Reamed INtramedullary Tibial Nailing Court-Brown, CM JOT Volume 18 No.2, Feb 2004 96-101


**Fractures of the Tibial Plateau**


**Fractures of the Femur**


32) OKU Trauma 3 Chapter 34. Fractures of the Distal Femur

33) OKU Trauma 3 Chapter 33. Fractures of the Femoral Diaphysis

**Fractures of the Proximal Femur and Hip**

34) Ipsilateral Femoral Neck and Shaft Fractures. Wolinsky and Johnson. CORR Number 318, pp81-90


36) Treatment of Reverse Oblique and Transverse Intertrochanteric Fractures with Use of an IM Nail or 95° Screw-Plate. Sadowski et al. JBJS Vol 84-A. No.3. March 2002 P 372-381.


Pelvis and Acetabulum
41) Radiology of the Normal Acetabulum (Chapter 3) in Fractures of the Acetabulum. Letournel and Judet.
45) Pelvic Fracture in Multiple Trauma: Classification by Mechanism is Key to Pattern of Organ Injury, Resuscitative Requirements, and Outcome. The Journal of Trauma. Vol 29. No.7. July 1989. p981-999
46) Acetabular Fracture Fixation Via a Modified Stoppa Limited Intrapelvic Approach. Cole and Bolhofner. CORR. Number 305. p112-123.

Fractures of the Shoulder Girdle

Fractures of the Humerus and Elbow

Miscellaneous