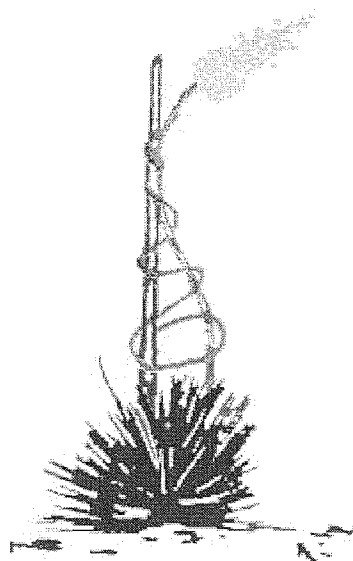


**The University of New Mexico Department of  
Orthopaedics  
and Rehabilitation**

**Trauma Fellowship Program**



**Handbook  
Of  
Policy and Procedures**

## Mission Statement

The mission of the orthopaedic trauma fellowship program is to provide the foundation for a lifetime of learning and practice of orthopaedic trauma surgery, and to produce graduates who exemplify the highest ideals of our profession. It is our purpose to excel in clinical service, education, and research while maintaining the highest ethical standards, providing compassionate healthcare services, and contributing toward improvement of the healthcare delivery system.

## Program Description

### Message from the Trauma Fellowship Program Director



Welcome. We have one twelve-month, RRC-accredited fellowship position available every August 1. The next available fellowship is in August of 2012. Completion of an approved orthopaedic surgery residency training program is required.

The fellowship is well-balanced between acute and reconstructive trauma, isolated and complex cases, clinical care and didactic learning, independence and guidance. We are the only Level 1 Trauma Center in the state and have an excellent integrated relationship with the Trauma service of the Department of General Surgery. A fellow will get plenty of operative experience, but will always have attending guidance. This is not a trauma fellowship where a resident is totally left to take care of trauma patients by themselves, nor is it an observational apprenticeship. A fellow will learn techniques and principles by guided responsibility, repetition, being a teacher themselves, and combine didactics with clinical care.

- Thomas A. DeCoster, MD

## Goals & Objectives

1. Overall goals and objectives of the program are best accomplished by recruiting the most qualified candidates for fellowship training and providing an atmosphere conducive to learning.
  - **Basic Sciences:** Basic science of orthopaedic trauma is part of the curriculum. 1) Fellow participates in the resident lecture series. The first of 9 blocks is devoted to basic science, of which trauma is a large component. This includes biomechanics of fracture and fracture fixation, biology of fracture healing and anatomy. 2) Fellow specific lectures also include a basic science section for each clinical topic including specific anatomical consideration. See lecture titles in the curriculum.
  - **Clinical Topics:** The curriculum will cover all areas of clinical orthopaedics trauma and also include primary care topics relevant to trauma. Conferences will be attended by trauma faculty members of the Orthopaedic Department. Clinical topics will be covered in the fellow curriculum and fellow participation in the resident trauma curriculum Wednesday morning and evenings.
  - **Lifelong Learning:** An environment of inquiry will be supported through all levels of the training program. The concepts of practice-based learning and improvement, including Evidence Based Medicine, will be taught and emphasized across the spectrum from learning through patient care in an effort to facilitate development of an attitude of perpetual learning. This involves critical review of literature and application to practice.
  - **Research:** Fellows will be introduced to research methodology early in the year. Fellows will be expected to participate in meaningful research projects during the year. Protected time for research is provided to all fellows during their weekly schedule. Prior to graduation, each fellow is expected to complete a research project. Faculty will provide guidance and support. Sources of funding for research support are available for projects of sufficient scope.
  - **Patient Care:** Faculty will ensure that appropriate, effective, current, skilled, compassionate care is provided to all patients as well as the promotion of health behavior. Fellows will be given progressive responsibility for the care of patients under the supervision of the faculty. The fellowship is a scholarly apprenticeship with emphasis on trauma patient care for practical education, motivation, and applicability.
  - **Interpersonal and Communication Skills:** Fellows will be exposed to a curriculum and environment that teaches and stimulates the effective exchange of information among health care professionals as a functional team and during the interaction between the physician and the patient, family, and other health professionals.
  - **Professionalism & Ethics:** Faculty and fellows will maintain an environment of professionalism including behavior expected of professionals and adherence to ethical principles and sensitivity to a diverse patient population including Native Americans.

- **Systems-Based Practice:** Faculty and fellows will encourage an environment of learning and patient care that considers the overall context of health care delivery in the greater societal paradigm that is of optimal value. Care is based in a Level 1 Trauma center with a wide ranging referral base.
- **Working Environment:** Fellows will work in an environment that emphasizes an appropriate balance between the demands of patient care, the value of hands-on learning, and the potential risk of medical errors. Fellows will be expected to work within the guidelines of the 80 hour work week. Fellows and faculty will be expected to understand and practice the principles of an effective work environment.
- **Evaluative Process:** Faculty and fellows will work within an educational framework that facilitates multiple and frequent modes of evaluation and utilizes the evaluative process in an effort to continually improve the educational and patient care processes.

### Competency-Based Goals and Objectives

2. Appendix I contains, in table format, the six core competencies as defined by the ACGME as well as the required skills for each competency, example components, teaching and evaluation methods which will be used by the program.

### Policies and Procedures

#### Personnel - Benefits Office

The Office of Graduate Medical Education, Room G37, Biomedical Research Facility, University of New Mexico School of Medicine, functions as personnel, payroll, and benefits office for house officers in training programs.

#### Annual Leave

The Department of Orthopaedics and Rehabilitation will follow the Annual Leave Policy as set by the Office of Graduate Medical Education. Please refer to the GME Handbook for leave policy. The Department of Orthopaedics and Rehabilitation requires that fellows complete a leave request form (available from the Medical Fellowship Coordinator) with all required signatures before submitting for approval. All statistics must be up to date before leave will be approved.

- 3 weeks vacation per academic year (21 calendar days, 15 week days, not to exceed 42 calendar days, including sick days, per year) and 15 days sick leave allowed, if necessary.
- Academic leave shall be provided for fellows not to exceed 7 calendar days or 5 week days per year unless approved by the fellowship director.
- Leave time beyond the standard allotment may be granted for the purpose of presenting research as approved by the program director/chair.
- Unused vacation or academic leave time will not be compensated.

- No time off the first or last two weeks of contract.
- Leave request should be completed at least one month in advance of taking leave. Priority on first-come, first served basis up to three months in advance.
- Exceptions to policy can be approved by the Program Director.
- Vacation request must be completed and signed by:

Medical Records

Medical Fellowship Coordinator

Program Director

### **Travel Funding Policy**

- The Department will provide funding for fellows to attend one academic meeting each year. Additional meetings can be attended but the fellow will be responsible for arranging funding.
- Reimbursement will be provided upon receipt of original receipts for the following:
  - Airline ticket -- coach fare booked in advance. Provide the boarding pass or obtain a receipt from the airline when boarding. Meal reimbursement will be based on airline ticket departing and arrival times.
  - Ground transportation – provide odometer reading.
  - Parking fees
  - Shuttle and/or Taxi – bring in an original receipt.
  - Hotel -- following UNM guidelines, not to exceed \$200/night if paid for by the department
  - Meeting registration – present original receipt from hotel and conference brochure.
- If presenting a paper at a **nationally or internationally recognized scientific meeting**, such as the AAOS or specialty-specific meeting, a fellow may be granted additional leave time and complete or partial funding. Prior approval by the Program Director, Chair, **and** Department Business Manager is required. A budget request must be submitted in advance.
- Requests for funding for a national meeting must be made at least 3 months in advance.
- Requests for funding for an international meeting must be made at least 6 months in advance.
- Any requests for attending a meeting have to be within the Department Fellow Travel Policy.
- Exceptions to this policy are to be approved by the Program Director.
- Fellows will be required to give a brief presentation following attendance to a meeting.

## **Work Week Policy**

### **Duty Hours**

Duty hours are defined as all clinical and academic activities related to the Trauma Fellowship program, i.e. patient care, administrative duties related to patient care, time spent at the training room or for event coverage, and academic activities such as conferences. Duty hours do not include studying and preparation time spent away from the hospital.

Duty hours are limited to 80 hours per week, and are averaged over a four-week period, inclusive of all in-house call activities.

The fellow will take call from home with Trauma Faculty (Dr. DeCoster and Dr. Gehlert) these activities will count toward the duty hour's limit. Approximately 6 weekends a year and 30 weekdays a year. This call service is adjunctive to the resident and faculty call schedule.

Fellows are provided with one day in seven free from all educational and clinical responsibilities, averaged over a four-week period, inclusive of call. One day is defined as one continuous 24-hour period free from all clinical, educational and administrative activities.

**ALL** fellows and faculty members are required to view the presentation by Lee Brown MD entitled "Miles to go Before I Sleep: Sleep/Wake Issues in Graduate Medical Education" available on the GME website at the following link: [http://hsc.unm.edu/som/gme/prog\\_admin.shtml](http://hsc.unm.edu/som/gme/prog_admin.shtml). Additionally, all fellows and faculty must feel competent in recognizing signs of fatigue, be knowledgeable concerning the potential impact on patient care, and be prepared to take necessary action to remedy the situation. Further helpful information is available at the following sites:

[http://www.acgme.org/acWebsite/dutyHours/dh\\_sleepdepbib2.pdf](http://www.acgme.org/acWebsite/dutyHours/dh_sleepdepbib2.pdf)

<http://www.lifecurriculum.info/>

**ALL** fellows and faculty must sign the Duty Hours Contract (appendix V).

### **On-Call Activities**

Fellows will not have any in-house call.

### **Moonlighting**

Moonlighting is allowed as approved by the program director. However, the trauma fellowship is considered a full time endeavor and moonlighting is rare.

## Oversight

This policy must be distributed to fellows and faculty. Monitoring of duty hours will occur on an on-going prospective reporting system at the end of each month. The fellows will submit to the Program Director a report of actual number of hours worked each month.

Back-up support will be provided when patient care responsibilities are unusually difficult or prolonged or if unexpected circumstances create fellow fatigue sufficient to jeopardize patient care. A second attending on call is available for direct patient care in case of such situations.

Fatigue and sleep loss evaluations will be performed by the attending of each hospital in an on-going fashion. The attendings' responsibility will be to assess the resident before going to the OR. This will serve to protect patient safety and resident well-being.

## Surgical Activities Report (Case Logs)

Each fellow is responsible for entering in his/her surgical activities in the ACGME database every week. The Fellowship Coordinator will run a report the third week of the month. If the fellow has not reported any surgical activities, the fellow will be in violation. Fellows in violation of reporting their surgical activities will be suspended from clinical activities until the deficiency is corrected. Failure to report surgical activities may also result in denial of vacation and/or other punitive measures at the discretion of the program director. Failure to report surgical activities could result in dismissal from fellowship program.

GME Website: <http://hsc-gmedb/GMEWeb/>

ACGME Website: <https://www.acgme.org/residentdatacollection/>

## Medical Records

It is against the policy of the Orthopaedic Department to have delinquent medical records. Vacation will be denied if Medical Records are not up-to-date.

### Medical Records Delinquency Warning Notice

In order to maintain compliance with JCAHO standards the Medical Executive Committee has endorsed a policy for completing medical records. This policy states that housestaff and medical staff physicians must complete all available delinquent/incomplete medical records within two weeks. This two-week period for signatures will begin after all medical records chart work is completed. If any housestaff or medical staff physician has not completed all available records during the past 14 days, and if there are no other extenuating circumstances which have precluded chart completion by the responsible physician such as administrative leave, the delinquent physician will be placed on temporary suspension from training and patient care at the UNM Health Sciences Center until such time that these records are completed and verified by the Medical Records Department. The Medical Records Department will verify delinquencies before the physician is reported and requests any issues, errors, or extenuating circumstances to be brought to their attention.

Operative reports should be dictated immediately following the procedure and before leaving the OR.

There should be an attending staff note/counter-signature on every patient chart every 48 hours.

Verbal orders should be signed within 24 hours.

A discharge summary should be dictated upon discharge. The summary should include the condition at discharge, physical activity instructions, medications, diet, and follow-up instructions.

### **Referral Calls From Physicians**

It is the policy of the Department of Orthopaedics to accept all in-patient transfers and out-patient referrals.

### **Documentation of Patient Care Involvement by Attending Medical Staff**

Documentation of personal involvement by the attending is important for the proper documentation of quality of care necessary to meet JCAHO standards and critical for reimbursement.

It is important that personal involvement/participation by the attending be reflected in the medical record for each primary care, consult, or other patient encounter.

The attending physician must be present during the key portion of any service or procedure for which payment is sought.

The attending physician's presence and the level of service to be billed must be documented in the medical record.

Co-signature of the attending without personal involvement and documentation of the level of service to be billed is not recommended.

### **Supervision of Fellows**

All patient care is supervised by qualified faculty. The program director ensures, directs, and documents adequate supervision of fellows at all times. Fellows are provided with rapid, reliable systems for communicating with supervising faculty.

Faculty schedules are structured to provide fellows with continuous supervision and consultation.

Faculty and fellows are educated to recognize the signs of fatigue and have policies to prevent and counteract the potential negative effects. The policy and educational material is available in the fellowship coordinator's office.

### **Policies Regarding Clinical Responsibilities, Graduated Levels of Supervision, and Criteria for Promotion**

Curriculum Guidelines for the fellowship are provided as a separate document. It is the fellow's responsibility to occasionally review these and insure that the stated objectives are being met.

Specific goals and objectives for the fellowship are attached as separate documents (see Appendix III). It is the fellow's responsibility to review these to insure that the stated objectives are being met.



A *general* guideline follows:

### Fellow Clinical Responsibilities

The primary responsibility of the Trauma fellow is the efficient and effective operation of the orthopaedic trauma service at University of New Mexico Hospital. In order to accomplish these responsibilities, a fellow has the following job description:

- The fellow must coordinate clinical coverage with the resident team on the Trauma rotation. They should ensure adequate balance of exposure to evaluating and treating patients in the clinic as well as providing surgical treatment in the operating room. On average, fellows will spend 4 half-days a week in the clinic and 5 half-days a week in the operating room. One half-day a week is reserved for scholarly activities.
- The fellow helps run the Trauma OR add on room Wednesdays (when not in lecture) and assists on other days as allowed by the duties.
- Fellow participates in the trauma component of the residency curriculum including Wednesday morning and evening. The 3 hour Wednesday will typically have the fellow presenting a 1 hour lecture and discussing the other 2 hour topics.
- The fellow is expected to attend the weekly Wednesday afternoon conference and to have read the articles related to the topic of discussion for that week.
- The fellow will be asked to assist in the didactic teaching of fellows, medical students and allied health professionals in areas of trauma. This may include lectures, anatomy dissections, motor skills labs, etc.
- The fellows will attend the weekly orthopaedic Grand Rounds, monthly M&M, as well as the Friday morning pre-op teaching conference.
- The fellow should communicate daily with the trauma faculty. The fellow is responsible to know of upcoming surgical cases and should assist the fellows in pre-op planning and executing a treatment plan.
- The fellow should establish a spirit of cooperation and mutual support among the fellows, and be willing to support their problems in discussion with the faculty.
- Fellow attends and helps to teach the annual SWOTA PGY2 Labs.

**Criteria for Completion:** The Fellow should evidence maturity in judgment in the approach to solving orthopaedic trauma problems and recommendations for treatment. Sound decisions should be based on well-grounded principles. The ability to act singly or in conjunction with others should be demonstrated in the performance of her/his duties. A well-rounded background in the orthopaedic literature should have been accumulated at the time of annual review by the staff. The Fellow should perform within the Department of Orthopaedics standards. The Fellow should possess all of the necessary attributes that would qualify her/him for successful completion of the American Board of Orthopaedic Surgeons certification examination.

## **Scholarly Activity**

Graduate medical education must take place in an environment of inquiry and scholarship in which fellows participate in the development of new knowledge, learn to evaluate research findings, and develop habits of inquiry as a continuing professional responsibility.

Each fellow should be continually engaged in at least one project which may lead to the publication of a scientific article and must have a faculty member designated to act as advisor for the project.

Prior to graduation, each fellow is expected to be involved in at least 2 research projects. A faculty advisor will be designated for all research projects. The designated faculty advisor will review the preliminary hypothesis; assist in the development of the project outline; assure that appropriate IRB approval is obtained; be responsible for the validity of data collected; and assist in the development of both the preliminary and final manuscripts. The project must comply with the policies of the University of New Mexico Health Sciences Center and associated institutions.

The faculty advisor must grant approval of the paper before it is submitted for publication but does not have to be a co-author.

Fellows will maintain a list of their publications in their portfolio.

## **TEXTBOOKS**

Several textbooks and Journals will be helpful to you during this upcoming year.

## **RESEARCH**

It is expected that each fellow will complete two research projects. Quarterly progress reports are submitted by each fellow to the Program Director and are due at the end of each three-month rotation.

### **FELLOWSHIP RESEARCH EXPECTATIONS**

At the University of New Mexico Department of Orthopaedics School of Medicine we have a total of three fellowship programs including;

1. Sports Medicine, Daniel Washer, MD - Program Director
2. Orthopaedic Trauma, Thomas DeCoster, MD- Program Director and
3. Hand, Moheb Moneim, MD - Program Director.

As we continue to move forward to increase emphasis on our orthopaedic research program we have developed expectations for our fellows in the this area. In order to better equip our fellows with an educational foundation for the research process and to enable them to make a contribution to the orthopaedic literature with their own work we strongly encourage our fellows to come on board with a project, timeline and budget (if necessary) for the study they would like to work on while they are in their fellowship here at UNM.

It is important for the UNM Orthopaedic Fellows to be active in our research program in order to increase the standard of care we provide to our patients by taking our research from

the “bench to the bedside” and by giving back to the orthopaedic literature world by contributing their own studies. It is important that the fellows *begin* their fellowship with:

- A planned project with completed protocol (that includes; study goals, background and methods).
- IRB/HRRC application approval. This should be started in advance and prior to their arrival as this is a six to eight week process.
- A faculty mentor or principle investigator to help guide them through our process.
- A project timeline and budget (if needed).

**Research Project Title:**

Comparison of the Accuracy of 2D and 3D Imaging of Elbow Fractures Needing Operative Treatment

**Principal Investigator:** Thomas DeCoster, MD

**HRRC#:** 07-130

**Background:**

Elbow fractures can be complex and challenging to treat. Accurate preoperative radiological characterization of the fracture facilitates planning and execution of internal fixation. At our institution, 3D-CT scans are standard of care in the case of complex elbow fractures that need operative treatment. By scientifically proving the added value of 3D CT imaging over 2D imaging we hope to promote the widespread use of 3D-CT imaging.

Primary study question: Do 3D computed tomography images predict fracture characteristics more accurately than 2D computed tomography images and radiographs?

Secondary study question: Do reconstructed 3D rapid anatomical models (3D RAM models) predict fracture characteristics more accurately than 2D and 3D CT images and radiographs?

**Methodology:**

We will request that 3DCT reconstructions be ordered for all patients. Computed tomography scans will be sent to Medical Modeling LLC (Golden, CO) for same-day manufacturing of the reconstructions of the 3D RAM models. The treating surgeons will complete a checklist of important fracture characteristics; initially based upon 2D images alone, in a second round based on 2D and 3D-CT images, and in a third round on 2D, 3D-CT images and 3D RAM models. After surgery the treating surgeons will complete a second checklist of intra-operatively visualized fracture characteristics, based upon intra-operative exposure this time. Based upon these checklists, the intra-observer agreement and interobserver agreement will be determined. Sensitivity, specificity, accuracy, positive and negative predictive values will be calculated for 2DCT and radiographs, for 3DCT, and for 3D RAM models as compared to the intraoperative direct observation. Ct scans will be uploaded to a site accessible by the medical modeling technician.

**Goals:**

The major benefit of this study will be to future patients with elbow fractures and their surgeons, since the data collected will help to clarify the assumable facilitating role of 3D imaging technology in the evaluation of elbow fractures.



**Research Project Title:**

Quantifying Injury Severity to Assess the Risk for Post-traumatic Osteoarthritis

**Principal Investigator:** Thomas DeCoster, MD

**HRRC#:** 09-033

**Background:**

Post-traumatic osteoarthritis is common after distal tibia plafond fracture and is a huge problem. Little is known about the predictors. Post-traumatic osteoarthritis (PTOA) is a frequent and often early complication of severe intra-articular fractures, seems to be independent of treatment methodology, and leads to substantial lifelong morbidity and disability. Despite advances in fracture care, PTOA remains, for some injuries, seemingly inevitable. Little is known about the biologic processes at work in the joint shortly after injury, and even less is known about how these processes – and injury severity – link joint injury to eventual PTOA. At the University of Iowa (the coordinating center for this investigation), enabling technology has recently been developed and validated to measure the severity of intra-articular fracture in a clinical setting by using CT data to assess articular fragmentation, fragment dispersal, and soft tissue injury. The purpose of the present investigation is to extend that CT-based methodology in a multi-center investigation, validating that the methodology can be reliably implemented in other centers. Additionally, the present investigation aims to correlate these new measures of injury severity with the development of PTOA, using standard radiographic measures and patient-based outcomes.

**Methodology:**

A prospective multi-institutional study of patients with articular fractures will lead to important advances in assessing the effects of articular fracture. Twenty patients from skeletal maturity to age 70 with unilateral fractures of the tibial plafond who present to UNM Hospitals within 4 weeks of injury will be included. To be included, fractures should be classified as 43B or 43C according to the AO/OTA classification system; this will ensure a full range of injury severity, important for achieving the study goals.

**Goals:**

The potential benefits to society are that the investigation will result in increased knowledge of what is the best way to treat these fractures in future patients, as well as the increased knowledge of how we may in the future lessen the effects of PTOA in patients who sustain these severe injuries.

**Research Project Title:**

FDA Allograft Infection Study- Methods Development for Assessment of infection rates after Human Tissue Allograft Implementation

**Principal Investigator:** Thomas DeCoster, MD

**HRRC#:** 11-103

**Background:**

Infection following implantation of an orthopedic allograft can be devastating. Patients suffer prolonged disability, require extended courses of intravenous antibiotics, and often need additional surgery. Infections caused by inadequately decontaminated tissue allografts are believed to be rare, but clusters have been discovered and reported repeatedly. Their actual frequency among the more than 1.3 million allografts implanted each year is unknown. Many infections escape attribution to an allograft and there is no requirement to report the infections that are detected. These challenges bespeak a need to develop new methods to help attribute infections to allografts as well as a systematic surveillance strategy. We propose to do exploratory work on the accuracy of claims codes and electronic medical record data to identify patients with allograft infections and the feasibility of statistical cluster detection using electronic health data to enhance identification of infections caused by contaminated implants.

**Methodology:**

1. Assess methods to identify the use and type of tissue allografts during selected orthopedic procedures.
2. Assess methods for identifying serious postoperative infections.
3. Calculate post-operative incidence rates of infections overall and by pathogen type.
4. Begin exploratory work to develop statistical methods to detect clusters of infection that might be manifestations of a common source of contamination, such as tissue allografts.
5. Create data resource implementation plan for allograft infection surveillance in collaboration with FDA.

**Goals:**

This research may be able to help set in place policies and procedures to limit infection in allograft patients.

**Research Project Title:**

Results After Carpal Tunnel Release Using Limited Incision Technique

**Principal Investigator:** Moheb Moneim, MD

**HRRC#:** 11-291

**Background:**

There is ongoing debate regarding the optimal operative approach in performing carpal tunnel release. When compared to an open traditional approach, endoscopic release has been associated with earlier return to work--and early on, a higher rate of complications. Some reports in the literature indicate there is a possibly equivalent result after endoscopic carpal tunnel release. The purpose of this study is to report on the complication rate and outcome using a limited incision technique to perform carpal tunnel release.

**Methodology:**

Chart review to locate 100 patients who potential meet outlined selection criteria.

**Goals:**

This study stands to assist in validating an alternative carpal tunnel release technique and report on it efficacy in symptom resolution as well as the report the complication rate; thereby assisting patients and their practitioners' in treatment decisions regarding CTS.

**Research Project Title:**

Mechanical Properties and Adjustability of a Novel Triangular External Fixator Configuration

**Principal Investigator:** Robert Quinn, MD

**HRRC#:** SWOTA Grant 497335

**Background:**

Frame construction for tibia external fixators is an important determinant of outcome. When used for definitive fixation, reduction with less than 5mm translation and smaller gaps are associated with reduced healing time and can reduce nonunion. There is potential to improve on current frame design by applying bicycle frame design principles. A novel external fixator configuration developed at UNMH could allow a more stable construct, as well as easier application and adjustability when compared to current constructs.

**Methodology:**

Our study will use composite synthetic tibiae which have been broken in a standardized manner and stabilized with various external fixators for comparison. The different external fixator designs which will be compared are 1) pin-clamp, 2) uniplanar pin-rod and 3) UNM multiplanar triangular designs. The designs will be loaded axially and measured for stiffness out of plane in an MTS device. The tibiae will be mounted to the setup by potting the ends with cement. Proximally, the end will be cemented into a total-knee component. Distally, the end will be potted into a universal joint to simulate the ankle.

Stiffness will be measured both with the MTS machine itself and also by measuring distance of deflection out of plane using LVDT devices.

**Goals:**

The novel triangular UNMH configuration is 1) more stable, 2) more easily applied and 3) more easily adjusted than the comparison external fixator designs currently in common usage.

If the novel triangular external fixator configuration is determined to be as stiff as or stiffer than other commonly used configurations, it would be useful since it is less-expensive as it uses only readily available parts and can be built with any brand's most basic components. A unique application is to Third-World

orthopaedics where only basic components are available, and the ability to adjust the construct after placement is paramount as there is usually no intraoperative imaging.

**Research Project Title:**

Noninvasive Diagnosis of Acute Compartment Syndrome

**Principal Investigator:** Robert Schenck, MD

**HRRC#:** 09-309

**Background:**

Compartment syndrome is a condition where pressure in the muscle compartment is elevated and requires decompression by fasciotomy. When effective treatment is not provided, local loss of sensation, paralysis, and Volkmann's contracture may result (Mubarak et al. 1976).

Previous studies have focused on methods of directly and invasively measuring IMP. However, these procedures are invasive, painful, and difficult to use continuously. A noninvasive method, if simple, accurate, and reproducible, could provide some significant advantages.

**Methodology:**

The EN-TACT™ Patient Monitor is a low-power ultrasound instrument designed to detect and continuously monitor very small displacements (on the order of microns) between the ultrasound transducer (on the skin surface) and the far surface of the fascia wall of a muscle compartment (Lynch, et al. 2004; Wiemann, et al. 2006, Garabekyan, et al. 2009). By comparing the phases of the transmitted and received pulse, the change in dimension of the acoustic pathlength (muscle tissue) can be measured. This dimension normally changes due to blood pressure pulsations and the magnitude and harmonic content of these pulsations is dependent upon the pressure within the muscle compartment.

EN-TACT™ can diagnose elevated intramuscular pressure (ICP), defined as pressure greater than the clinical diagnostic threshold of 30 mmHg, with high sensitivity and specificity in patients with orthopedic trauma admitted to the University of New Mexico Trauma Center.

**Goals:**

The scientific knowledge gained will lead to a noninvasive tool for estimating IMP which would benefit future patients.

**Research Project Title:**

Anterior Tibialis Transfer into Non-Ossified Cuneiform

**Principal Investigator:** Elizabeth Szalay, MD

**HRRC#:** 10-014

**Background:**

Current treatment of clubfoot is almost universally using the Ponseti Method. This can be started within the first few weeks of life and consists of weekly manipulation of the foot with casting. Usually 5-6 casts are necessary as well as Achilles tenotomy prior to transitioning to full-time brace wear in order to maintain the correction. This continues for 3 months and then the child can be transitioned to nighttime wear only. They continue this until they have reached 4 years old, then bracing can be discontinued all together.

Traditionally, transferring the anterior tibialis tendon for treatment of dynamic supination has been into an ossified middle cuneiform. Multiple surgical technique descriptions of this procedure describe the identification of the ossified middle cuneiform on radiographs prior to surgery. The cuneiform bones ossify between 3 months and 2 years. After a literature review we have been unable to find any studies specifically comparing clinical outcomes between transfer into ossified VS non-ossified cuneiforms.

The rather large window in appearance of the ossification center means that there are some children about 1-2 years of age that are showing dynamic supination of the foot, poor brace compliance, and would benefit from transfer of the anterior tibialis tendon, but do not yet have an ossified middle cuneiform. Waiting for the middle cuneiform to ossify is not optimal in a foot that is demonstrating progressive recurrence because there is potential risk of needing other procedures such as a posterior medial release and/or Achilles tendon lengthening. The more surgical procedures needed results in a longer operative time, higher risk of wound complications, higher risk of nerve or vascular damage, and overall a higher risk of morbidity.

For these reasons we have performed anterior tibialis tendon transfer into non-ossified middle cuneiforms for the treatment of dynamic supination in recurrent clubfoot deformity. We hypothesize that this will result in the same efficacy and morbidity rates as when the transfer is into an ossified middle cuneiform.

**Methodology:**

This is a retrospective review of all anterior tibialis tendon transfers done for the treatment of dynamic supination in recurrent clubfoot deformity. We will first identify the total number of cases using CPT codes and collect their medical record numbers. We will request their charts and radiographs from the medical library and film library. Collected data will include age at time of surgery, sex, medical problems, length of follow-up, Pirani score at time of presentation and at final follow-up, radiographic correction, radiographic middle cuneiform appearance at time of surgery, whether or not the transferred tendon was functioning, additional procedures done at time of tendon transfer, additional surgeries needed and any complications.

**Goals:**

If no difference is found in morbidity of transfer into non-ossified cuneiform, this would justify surgeon's ability to do tibialis anterior transfer for dynamic supination in recurrent clubfoot in a younger population, thus increasing the overall probability of functional correction of clubfoot deformity.



**Research Project Title:**

Comparison of Drill versus 8-Plate Techniques for Epiphysiodesis about the Knee

**Principal Investigator:** Elizabeth Szalay, MD

**HRRC#:** 10-060

**Background:**

Multiple surgical techniques for epiphysiodesis around the knee have been described in the past. Recently, eight-plates were introduced by Dr. Stevens as a new technique for the treatment of angular deformities around the knee using the concept of "guided growth." Due to the ease of use and low complication, and ability to remove the plate, the eight-plate is also being used on both the medial and lateral sides of the physis for the purposes of epiphysiodesis. No studies to date have compared the eight-plate to previously used techniques for epiphysiodesis.

Our hypothesis is that drill epiphysiodesis yields results equal to bilateral eight-plate epiphysiodesis as a lower cost.

**Methodology:**

This will be a retrospective chart and radiographic review comparing two techniques for the completion of epiphysiodesis and The University of New Mexico: drill epiphysiodesis and epiphysiodesis with medial and lateral eight-plates. Outcomes we will be examining are: 1. success of treatment determined by radiographic evidence of growth cessation, 2. time to growth cessation, 3. complications associated with each technique, 4) if 8-plates were removed, whether physical growth resumed.

**Goals:**

The expected benefit of this study is an increase in knowledge concerning the surgical procedure epiphysiodesis and possibly ways to make it more cost effective. This knowledge may be of benefit to future patients needing this procedure.

**Research Project Title:**

Foot Polydactyly Toe Excision: Does Cutting Part of the Epiphysis Cause Growth Deformity

**Principal Investigator:** Elizabeth Szalay, MD

**HRRC#:** 10-114

**Background:**

Foot polydactyly is a common deformity that is found in approximately 1.7 in every 1000 live births, characterized as extra digits or metatarsals, and they may be located in several positions. There are several different types of foot polydactyly with the general characterizations being preaxial, central ray, or postaxial. Preaxial refers to the duplication of the hallux, central refers to duplications of the second, third, or fourth toes, and postaxial refers to a duplication of the most lateral digit. The latter is the most common. The consequences of having foot polydactyly are variable and dependent upon each individual case. The most minor complication is typically shoe discomfort or difficulty finding shoes that fit. Other problems include but are not limited to discomfort or pain upon walking or exertion, and cosmetic issues. Typically these problems are corrected by surgery, however there is no current consensus of a single method of surgery to which component should be excised or which surgical technique is superior. This study intends to discover if the removal of an extra digit in polydactyly surgery that ablates the apophysis of a metatarsal will result in growth deformity, and, if so, what the prevalence is.

**Methodology:**

This is a retrospective review of patients with any form of foot polydactyly in New Mexico.

**Goals:**

To determine if New Mexico has a significantly higher or lower incidence of foot polydactyly than other states, or if any particular region of the state has a significantly different incidence. Also to see if a specific form of the birth defect has a higher or lower rate than the national statistics.

**Research Project Title:**

25 Hydroxy Vitamin D Levels in Resident Physicians Related to Sunlight Exposure

**Principal Investigator:** Elizabeth Szalay, MD

**HRRC#:** 10-594

**Background:**

Deficiencies of Vitamin D have been known to correlate with sunlight exposure and with dairy product intake. The objective of this study is to determine if there is a definite correlation between Vitamin D levels and dairy product intake and sunlight exposure.

**Methodology:**

UNM Fellows will be solicited to volunteer to participate in this study. The UNM Tricore Labs will provide a routine Vitamin D Hydroxy 25 blood draw. The fellows will also be asked to complete a questionnaire regarding the number sunlight hours they are exposed to and the amount of dairy product intake they consume in a given period of time. The questionnaires will then be matched with the corresponding Vitamin D level results. The data will then be interpreted and evaluated by the PI and CO-PI's for any correlations and possible presentation and/or publication value and also to use for further educational purposes.

**Goals:**

With this study we are expecting to prove that there is a correlation between Vitamin D levels and sunlight exposure and dairy product intake and with this knowledge we will be able to better treat patients with Vitamin D deficiencies through diet and natural means.

**Research Project Title:**

Evaluation of the Role and Effectiveness of Knee Immobilization in the Treatment of Osgood-Schlatter Disease

**Principal Investigator:** Elizabeth Szalay, MD

**HRRC#:** 11-100

**Background:**

There have been relatively few studies specifically into OS, presumably because it has been long-regarded as a relatively benign condition that responds well to conservative treatment and does not carry a likelihood of significant morbidity or long-term sequelae.

The goal of this study is to evaluate the effectiveness of knee immobilization in the treatment of Osgood Schlatter Disease (OS). This is important because if it can be shown that OS outcomes are no different with knee immobilization than with activity restriction, this patient cohort could be relieved of the inconvenience and lifestyle alteration inherent with activity restriction.

**Methodology:**

We will first identify patients who have been diagnosed with, and treated for, OS at Carrie Tingley Hospital (CTH). Once these patients have been identified, we will do a chart review and attempt contact with the patient, inquiring into the treatment they were prescribed, their adherence to that treatment, and the outcome of their condition. Once the knowledge of treatment modality, patient compliance, and outcomes can be amassed, the patients can be categorized into groups who effectively did and did not use knee immobilization, and did or did not see resolution of their condition.

**Goals:**

Possible societal benefit of study is greater understanding of the natural progression of Osgood Schlatter Disease, as well as its response to knee immobilization. This could benefit future patients identified with this condition by treating them with the most appropriate approach.

**Research Project Title:**

Clinical Outcomes of Knee Dislocations: 2- to 10- year follow-up

**Principal Investigator:** Daniel Wascher, MD

**HRRC#:** 09-404

**Background:**

Traumatic knee (tibiofemoral joint) dislocation is an uncommon but potentially devastating orthopaedic injury. Although exceptions have been reported, the hallmark of this injury is rupture of both cruciate ligaments, usually associated with a collateral ligament tear. Popliteal artery disruption can occur in up to 32% of these injuries and can lead to the necessity of amputating the extremity. Associated meniscal tears, osteochondral fractures, and nerve injuries are common. Thus, treatment of the dislocated knee may be the greatest challenge knee surgeons encounter. However, because of the low incidence of knee dislocations, there are very few studies addressing clinical outcome with an adequate number of patients and follow-up.

**Methodology:**

1. To collect information related to knee pain, function, and stability in patients who sustained a multiligamentous injury of the knee and were seen at UNMH between January 1, 1999 and December 31, 2006.
2. To identify and compare factors that significantly impact the clinical outcome of patients sustaining knee dislocations.

We hypothesize that patients who sustain knee dislocations with neurovascular involvement will have worse long-term clinical outcomes than patients without neurovascular involvement. Also, we hypothesize that KDIIIL injuries will fare worse than KDIIIM injuries on subjective outcome measures. We also hypothesize that patients who undergo surgical reconstruction in the acute phase will have better scores than patients who are either treated in the chronic phase or treated non-operatively.

**Goals:**

The current literature suffers from small series of patients and a wide spectrum of knee injuries. This study aims to fill some of the knowledge gaps concerning knee dislocations through the long term follow-up of a large cohort of patients. It is critical to evaluate the long-term clinical outcomes of knee dislocations to assess the success of various treatment modalities and aid in patient prognosis. Additionally, this assessment will allow for comparison of the effect of different knee problems on a patient's symptoms, function, and activity; thus, providing a better understanding

**Research Project Title:**

Retrospective Comparison of Patella Alta Ratios in Persons with Patellofemoral Arthroplasty and Normals

**Principal Investigator:** Daniel Wascher, MD

**HRRC#:** 11-097

**Background:**

Knee osteoarthritis is a significant cause of disability in the United States. Recent advances in orthopedic surgery have made patellafemoral arthroplasty an option for distinct treatment of isolated patellofemoral arthritis. The development of patellofemoral arthritis is multifactorial, but the prevailing hypothesis is misalignment of the patella in the trochlea leading to increased patellofemoral stress and early cartilage damage. By replacing just the patellofemoral joint, less trauma is incurred and recovery is shortened as compared to total knee arthroplasty. Another advantage of replacing the patellofemoral surfaces is that it allows for the tibiofemoral component to be replaced at a later date thus giving longevity to the knee. This research instigates the relationship between measurements of patella alta and the association of patella femoral arthroplasty.

**Methodology:**

This is a retrospective study. Charts of all patients who have received a patellafemoral arthroplasty by Dr. Wascher will be queried from the UNM database. A patellofemoral arthroplasty group and control group will be generated; data and measurements collected and analyzed.

We predict that patients with patellofemoral arthroplasty will have a higher incidence of patella alta as calculated with Caton-Dechamps, Modified Insall-Salviti and Blackburne-Peel measuring methodologies when compared with matched controls. We predict there will be high disparity of interrater reliability between a musculoskeletal radiologist, orthopedic resident and radiology resident when they use Caton-Dechamps, Modified Insall-Salviti and Blackburne-Peel measuring methodologies. In addition we predict the Blackburne-Peel will be the most accurate in predicting patella alta and the best interrater reliability.

**Goals:**

If a correlation is found between patella alta and patellofemoral arthroplasty, this could lead to prosthetics being built specifically to accommodate for this pathology, resulting in better surgical outcomes.

## **Didactic Program**

Attendance at all didactic functions is mandatory. All fellows will have a copy of the rotating yearly didactic program and will be responsible for ensuring appropriate attendance and participation.

## **Indications Conference**

Indications conferences are conducted as a part of the educational and clinical program of the department each Friday from 7:15 to 8:15 a.m. The first 15 minutes is a review of current in-patients by service. The objective is to be aware of the diagnoses being treated as well as identification of unusual or special problems. The progress of patients previously presented is updated.

The next 15 minutes is spent reviewing the coming week's case list. Indications, diagnoses, and the procedure are listed for each patient. The question, "Why is the patient indicated for this procedure at this time", should be answered as succinctly as possible, with evidence based medicine support. Active participation of the fellows is encouraged in the discussion of trauma cases.

A review of current orthopaedic literature is conducted monthly.

## **Morbidity and Mortality**

Morbidity and Mortality conference will be held monthly on the first Monday of the month. See Appendix III for Goals and Objectives. Each service will present all complications which occurred on their service since the prior conference. Select cases will be chosen for detailed discussion. A Fellow will present the case followed by relevant literature review and group discussion. Cases selected for detailed discussion should be those in which there have been breaches in patient care, medical knowledge, interpersonal and communication skill, professionalism or ethics, and/or systems-based failures. Discussion should include a modified root cause analysis with a quality improvement plan. Faculty will be assigned on a rotating basis to complete a quality assurance report on each case as well as an evaluation of each presentation, which will be subsequently filed in the office of the fellowship coordinator.

The environment of the conference should be one of education and a commitment to quality improvement. This is not a "blame and shame" conference. Individuals involved in the specific complication should be involved in the presentation and discussion and are encouraged to use this opportunity to purposefully reflect about the incident. Without appropriate recognition of responsibility, personal reflection, and reconciliation optimal learning and quality improvement cannot occur.

## **Learning Portfolio**

All fellows will be responsible for maintaining an up to date learning portfolio.

## TRAUMA FELLOWSHIP PORTFOLIO

A learning portfolio is a collection of materials that represents a fellow's efforts, progress and achievements in multiple areas of the curriculum. The purpose of the learning portfolio is to facilitate improvement in abilities.

Key Components:

- Self-assessment and goal setting
- Mentored observation and feedback
- Self-reflection in work
- Consolidation of documentation in achieving competencies
- Opportunity for fellow to learn and demonstrate the skills needed for self-directed, life-long learning

Three layers of a portfolio (1) filing of things you are already doing in each of the competencies (2) new projects that you have not been typically doing (3) putting it all together into a "life package"

The following are examples, the idea is for you to think of projects which serve your interests and at the same time meet the educational goals of each core competency. No guidelines will be established (yet) about number of projects but at the minimum there should be 1-2 projects per competency per year, not including the "standard" entries.

Sections:

- (1) General: summative, CV, self-reflection/assessment forms
- (2) Patient Care
- (3) Printout of Case Log
- (4) Medical knowledge:
  - Grand Rounds, other lectures
  - Summary of status of research project, manuscripts
  - Mid Fellowship Evaluation
  - Courses attended/CME Certificates
- (5) Practice-Based Learning and Improvement :
  - Literature searches
  - Case presentations (Pre-op conf. M&M)
- (6) Interpersonal and Communication Skills:
  - Stories of patient interactions
- (7) Systems Based Practice:
  - Debate Notes

All Fellows will be evaluated by the Program director semi-annually and by the faculty competency committee annually. The updated portfolio must be available for each of these meetings. Keep it current.

### **Teaching Schedule Change Notification Procedure**

Any and all changes to the Wednesday morning teaching schedule must be approved by the Program Director before the changes will be made.

### **Fellows Attendance at Teaching Sessions**

Fellow attendance at trauma teaching sessions is mandatory. Individuals will be excused from sessions for valid reasons such as being on leave or tending to emergency patient care. Coverage of clinics operative cases scheduled during didactic sessions is the responsibility of the attending and should not include fellows except in extenuating circumstances.

A "sign-in" sheet is to be signed by the fellow at every teaching session. The following guidelines should be followed:

- It is the responsibility of the Fellowship Coordinator to make the list available. It is each fellow's responsibility to sign the list.
- The Fellowship Coordinator will give fellows who are on approved leave "credit" for the lecture. "Approved leave" includes vacation, educational leave, and sick leave. "Unapproved leave" is any absence that does not have approval from the Program Director.
- At the Program Director's discretion, it will be the Fellowship Coordinator's responsibility to take roll at the lectures and make the information available to the Program Director.
- Each fellow's "attendance" will be kept on file and evaluated during performance review sessions.

### **GME Web Based Curricula**

In order to provide all Houseofficer's curricula designed to address specific ACGME Competencies, web based modules have been developed in Ethics, Patient Safety, and Research Methods. These curricula are Web based and located at <http://webct.unm.edu/home/index.html>. Effective July 1, 2006, all UNM Houseofficers must successfully complete the Research Design curriculum during their first year of training at UNM, and to have successfully completed all three curricula during their fellowship program. The completion of this curriculum is a requirement to obtain a certificate of completion from the institution.

### **Keys**

The Front Desk has the keys to the lab rooms which are located in the Basic Medical Science Building. Contact the Medical Residency Coordinator no later than 3:00 p.m. on the day you need the keys. A key to the department, library, and resident room will be issued at the beginning of fellowship and must be turned in to the Security Office at the end of the program.

## **Orthopaedic Department Security**

### Weekdays

The front and back doors to the department should be locked from 5:00 p.m. in the evening until 7:15 a.m. in the morning (unless there is an early morning conference when the front door is opened at 7:00 a.m.).

### Weekend

The front and back doors to the department should remain locked from 5:00 p.m. Friday evening until 7:15 a.m. Monday morning.

### Holidays

The front and back doors to the department should remain locked at all times unless a receptionist is present at the front desk



**Appendix I**  
**UNM ORTHOPAEDIC FELLOWSHIP COMPETENCIES**

<b>Competency</b>	<b>Required Skill</b>	<b>Example Components</b>	<b>Teaching Methods</b>	<b>Evaluation Methods</b>
<b><u>Patient Care</u></b>	Caring and respectful behavior	Patient care that is sensitive to each patient's age, gender, cultural, economic, and social circumstances.	Observation of and/or supervision by faculty during outpatient clinics; A dedicated Ethics curriculum.	Patient satisfaction survey; 360 Global rating; Ongoing faculty feedback/evaluation
	Interviewing	Gather essential and accurate information about the patient.	Observation of and/or supervision by faculty during outpatient clinics	Checklist; 360 Global rating; Ongoing faculty feedback/evaluation, Patient Satisfaction Survey
	Informed decision-making	Synthesize clinical history, physical findings, laboratory results and current scientific evidence to decide on correct diagnosis and treatment plan.	Observation of and/or supervision by faculty during outpatient clinics; Indications Conference; Didactic teaching, assigned reading	OITE; Checklist; 360 Global Rating
	Develop and carry out patient care management plans	Provide a written action plan for management of acute and chronic Orthopaedic problems.	Observation of and/or supervision by faculty during outpatients clinics; patient directed literature conference; Grand Rounds	360 Global Rating; Checklist
	Counsel and educate patients and families	Provide information necessary to understand illness and treatment.	Observation of and/or supervision by faculty during outpatient clinics	Patient satisfaction survey; 360 Global rating; Checklist
	Perform medical procedures	Perform routine physical examination  Perform appropriate diagnostic/therapeutic procedures	Observation of and/or supervision by faculty during outpatient clinics; Grand Rounds (clinical conference) Observation of and/or supervision by faculty during outpatient clinics; Surgery clinics; Grand Rounds (clinical conf.); Assigned textbook reading	Checklist; Ongoing faculty feedback/evaluation Self-assessment checklist; 360 Global rating; Procedure case logs; Documented Proficiency Requirements; Operative Assessment Tool
<b>Competency</b>	<b>Required Skill</b>	<b>Example Components</b>	<b>Teaching Methods</b>	<b>Evaluation Methods</b>
	Preventive health services	Provide information about osteoporosis,	Supervision of and feedback by faculty	Procedure Case Logs, Portfolio

		bone health, injury prevention	during outpatient clinics; Grand Rounds; Didactic lectures	
	Work within a team		Supervision of and feedback by faculty during outpatient clinics; Interactions with other healthcare professionals; Evidence-based journal club; Patient-directed literature review	360 Global rating; Self-assessment checklist; BAT CAVE
<b><u>Medical Knowledge</u></b>	Investigatory and analytical thinking	Actively participate in designing and implementing basic or clinical research projects	Didactic lectures, ERSIP Journal Club	360 Global Rating, Portfolio (Research)
	Knowledge and application of basic sciences	Critically evaluate and use current medical information and scientific evidence for patient care	Didactic lectures, assigned reading, Journal Club	OITE; 360 Global rating
<b><u>Practice Based Learning and Improvement</u></b>	Analyze own practice for needed improvement	Experience to recognize strengths, weaknesses, and limits to knowledge and expertise	Supervision of and feedback by faculty during outpatient clinics and OR	Self-assessment checklist, 360 Global Rating
	Use of evidence from scientific studies	Locating, appraising, and assimilating evidence from scientific studies related to patients health problems	Evidence-based medicine lectures; ERSIP;	Portfolio (Research); OITE
	Application of research and statistical methods	Critically review published medical literature related to patient problems	Evidence-based medicine lectures; ERSIP;	Portfolio (Research); OITE
<b><u>Competency</u></b>	<b><u>Required Skill</u></b>	<b><u>Example Components</u></b>	<b><u>Teaching Methods</u></b>	<b><u>Evaluation Methods</u></b>
	Use of information technology	Use information technology to manage information, access on-line medical information	Training in the use of on-line medical record system; Accessibility to on-line medical	360 Global Rating, Case Logs, Portfolio

		and support own education	searches; Journal club	
	Facilitating learning of others	Actively participate in the education of patients, families, rotating students and fellows	Supervision of and feedback by faculty during outpatient clinics; Grand Rounds; Didactic conferences	360 Global rating; Self-assessment checklist; Portfolio
<b><u>Interpersonal and Communication Skills</u></b>	Creation of therapeutic relationship with patients	Communicate effectively with patients & families to create and sustain an appropriate professional relationship	Supervision of and feedback by faculty during outpatient clinics; Ethics curriculum;	Patient satisfaction survey; 360 Global rating;
	Listening skills	Enabling patients to be comfortable asking questions about skin problem & treatment	Supervision of and feedback by faculty during outpatient clinics	Patient satisfaction survey; 360 Global rating; Self-assessment checklist
<b><u>Professionalism</u></b>	Respectful, altruistic	Demonstrate respect, compassion, & integrity; responsive to patients needs	Supervision of and feedback by faculty during outpatient clinics; Ethics curriculum;	Patient satisfaction survey, 360 Global rating; Self-assessment checklist
	Ethically sound practice	Demonstrate a commitment to ethical principles pertaining to confidentiality of patient information, informed consent, conflict of interest, and business practices	Supervision of and feedback by faculty during outpatient clinics; HIPPA training; Ethics curriculum	360 Global rating; Patient satisfaction survey; Portfolio; Web-based Curriculum/Exam
	Sensitive to cultural, age, gender, and disability issues	Demonstrate respect for the dignity of patients and colleagues including culture, age, gender, and disabilities	Supervision of and feedback by faculty during outpatient clinics; Ethics curriculum	360 Global rating; Patient satisfaction survey; Portfolios
<b><u>Systems-based Practice</u></b>	Understand interaction of their practices with the larger system	Work effectively in various health care delivery settings and systems.	Supervision of and feedback by faculty during outpatient clinics; Didactic Lectures	360 Global rating; Portfolios
<b>Competency</b>	<b>Required Skill</b>	<b>Example Components</b>	<b>Teaching Methods</b>	<b>Evaluation Methods</b>
	Knowledge of practice and delivery systems	Know how types of medical and delivery systems differ from one another, including methods of controlling	Didactic Lectures; Supervision of and feedback by faculty during outpatient clinics	Portfolios; OITE; Self-Assessment Checklist

		health care costs and allocating resources		
	Practice cost effective care	Know the relative costs of procedures and treatments; ask patients how they pay for medications	Didactic Lectures; Supervision of and feedback by faculty during outpatient clinics	CORD Standard-ized Direct Observational Assessment Tool; 360 Global rating;
	Advocate for patients within the health care system	Advocate for quality patient care and assist in dealing with system complexities	Supervision of and feedback by faculty during outpatient clinics;	360 Global rating; Patient satisfaction survey; Portfolios

## Appendix II

### SCHEDULE

#### WEDNESDAY MORNINGS

7:30- 8:30 A.M. GRAND ROUNDS  
9:00-12:00 P.M. DIDACTIC SESSION

#### WEDNESDAY AFTERNOONS

12:30P.M.-1:30 P.M. TRAUMA FELLOW CURRICULUM BY SYLLABUS TUTORIAL

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#### WEDNESDAY EVENINGS 5:30-7:30

1 <sup>ST</sup> WEEK	MOTOR SKILLS
2 <sup>ND</sup> WEEK	CLINICAL
3 <sup>RD</sup> WEEK	CLINICAL
4 <sup>TH</sup> WEEK	JOURNAL CLUB
5 <sup>TH</sup> WEEK	CLINICAL

\*Clinical is divided as desired into:

- Pediatrics
- Other : department lectures  
                  associate clinicians  
                  visiting professors

The Trauma Fellow participates when trauma topics are presented

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#### FRIDAY MORNINGS

7:15 - 8:15

PREOPERATIVE CONFERENCE

**Appendix III**  
**University of New Mexico Orthopaedic Journal Club**  
**Goals and Objectives**

**Goals**

- Acquire, disseminate, and apply new medical information
- Teach and assess critical appraisal skills for reading and writing a scientific paper
- Promote life long learning skills in evidence-based medicine
- Improve reading habits
- Provide an interactive and social opportunity for peer-to-peer learning
- Improve small group participation, presentation and communication skills
- Document practice-based learning and improvement in patient care

**Objectives (Best Practices)**

- Mandatory attendance
- Designated, committed, experienced, and skilled moderators
- Formal, consistent, and regular schedule and location
- Protected and convenient time
- Explicitly defined goals and structured evaluations.
- Limited number of articles but reviewed in more depth and articles selected and distributed with sufficient time to read completely
- Emphasis on original research articles
- Inclusion of basic but formal epidemiology and statistics and principles of evidence-based medicine
- Incorporation of adult learning principles (eg. rationale for study, self-directed learning, application or reservoir of learner experiences, task-centered approach, emphasis on practical application of information, emphasis on problem solving skills)
- Reinforcement of critical information with active instructional feedback
- Active participation with interactive discussion format
- Written documentation of participation and completion of evaluation

### **Five Domains of Practice-Based Learning and Improvement**

- 1) To appraise and assimilate scientific evidence from journal articles at journal club in order to improve practice based learning and lead to practice based improvement of patient care over time
- 2) To read critically a journal article and draw conclusions applicable to clinical care
- 3) To use a systematic and standardized checklist to analyze the paper
- 4) To apply knowledge of study designs and statistical methods to the appraisal of clinical studies
- 5) To maintain a self-documented written record (eg. learner portfolio) to use for future improvement of patient care based on the relevant literature examined during journal club.

## Appendix IV

### University of New Mexico Orthopaedic Morbidity and Mortality Conference

#### Goals and Objectives

##### Goals

- Forum for discussion of adverse events and reasons contributing to their occurrence
- Assistance in transformation of departmental culture to one which values patient safety and quality improvement
- Expansion of the knowledge and skills for fellows, fellows, and faculty through the modified root cause analysis process
- Educational discussion that contributes to improvement in patient care
- Structured, researched patient presentation that enhances medical knowledge
- Critical analysis discussion that facilitates practice-based learning and improvement
- Analysis and improvement in failures in interpersonal and communication skills
- Discussion of breaches in professionalism and ethics
- Analysis of systems-based failures and facilitation of plans for quality improvement
- Improve small group participation, presentation and communication skills

##### Objectives (Best Practices)

- Mandatory attendance
- Distinguish between a culture of blame/shame and a culture that promotes safety through a system analysis of adverse events
- Identify gaps in quality contributing to an adverse outcome
- Identify strategies to close gaps
- Participate in a modified root cause analysis, demonstrating an ability to critically review an adverse event and recommend a plan of action
- Identify curriculum weaknesses or deficiencies
- Formal, consistent, and regular schedule and location
- Protected and convenient time
- Structured format and explicitly defined goals



- Limited number of cases presented in depth
- Reinforcement of critical information with active instructional feedback
- Active participation with interactive discussion format
- Written documentation of participation and completion of M&M Forms

### **Format**

Morbidity and Mortality conference will be held monthly. Each service will present all complications which occurred on their service since the prior conference. Select cases will be chosen for detailed discussion. A resident will present the case followed by relevant literature review and group discussion. Cases selected for detailed discussion should be those in which there have been breaches in patient care, medical knowledge, interpersonal and communication skill, professionalism or ethics, and/or systems-based failures. Discussion should include a modified root cause analysis with a quality improvement plan. Faculty will be assigned on a rotating basis to complete a quality assurance report on each case as well as an evaluation of each presentation, which will be subsequently filed in the office of the fellowship coordinator.

The environment of the conference should be one of education and a commitment to quality improvement. This is not a “blame and shame” conference. Individuals involved in the specific complication should be involved in the presentation and discussion and are encouraged to use this opportunity to purposefully reflect about the incident. Without appropriate recognition of responsibility, personal reflection, and reconciliation optimal learning and quality improvement cannot occur.

## Appendix V

### UNM Department of Orthopaedics Duty Hours Contract

As the issue of work hours gains importance, we need a system to more easily ensure all fellows stay within the ACGME work hours restrictions. As such, we will begin to follow standardizations for all orthopaedic surgery fellows (as well as off service fellows rotating on our services).

These rules will ensure no fellows work more than 80 hours per week averaged over 4 weeks, no resident works more than 30 hours at one time, and there are greater than 10 hours between duty periods.

These regulations are not guidelines but are to be rigidly enforced. To ensure that this occurs, all teams prior to rounding must do a "DUTY HOURS TIME OUT" during which all housestaff must tell the attending what time they are to leave by that day. This is critically important for the post call team.

The attending is responsible for ensuring that mechanisms are in place for the housestaff to leave within the appropriate windows. This includes a protected time during which the housestaff may complete their progress notes and other work.

This system of shifts will have some important consequences. As sign out will gain importance we must protect those 2 important times of the day when patient sign-out occurs.

#### NON-CALL HOUSESTAFF:

All non-call housestaff may arrive no earlier than 6am and must leave by 8pm.

If a team deviates from these rules, the attending is responsible for ensuring that team members stay within the duty hour requirements. Each fellow must verify their duty hours on a weekly basis. This is a team effort and every member of the team is responsible for assisting other members in this endeavor as well as being forthright about their own duty hours. Exceeding duty hour limits is not acceptable in the Department of Orthopaedic Surgery.

I have read, and agree to abide by, the above rules.

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Signature

Print Name

Date

## Appendix VI

### Trauma

### Objectives

Faculty: Thomas A. DeCoster, MD  
Rick Gehlert, MD

#### Conference Schedule:

M&M 1<sup>st</sup> Wednesday of every month 7:30-8:30

Grand Rounds 2,3,4,5, Wednesday 7:30-8:30

- Tuesday 7:00-8:00 am-Conferences Omer Library in The Department of Orthopaedics
- Wednesday 9:00-12:00 lectures in Omer Library in The Department of Orthopaedics
- Monthly (3<sup>RD</sup> Wed of Month 7PM): Journal Club-
- Wednesday 12:30-1:30 Fellow Tutorial Appendix II
- Friday 7:15-8:15 Surgical Innovative Conference
- SWOTA – Sept. July
- Alumni Conference –June

Clinical Schedule: Wednesday 5:30-7:30

	Monday		Tuesday		Wednesday		Thursday		Friday	
	Am	Pm	Am	Pm	Am	Pm	Am	Pm	Am	pm
<b>RG</b>	OR	OR	CLINIC	CLINIC	OR	CONF	OR	CLINIC	OR	CLINIC
<b>TD</b>	OR	OR			OR	CONF				

#### Goals:

- To learn the discipline of trauma at the expected level of a trauma specialist.
- To know the surgical anatomy of this discipline
- To develop advanced differential diagnostic skills
- To learn advanced radiologic interpretive techniques
- To develop proficiency in open, closed and peratomy technique in the treatment of trauma injuries and conditions

#### Objectives:

- Patient Care
  - Delivery of patient care that is compassionate and respectful
  - Development of interview skills that are accurate, complete, and include issues relevant to trauma
  - Develop and carry out patient care management plans that include other medical disciplines, especially primary trauma care
  - Be able to counsel and educate patients, families, to be familiar with available resources
  - Be familiar with risk factors associated with trauma injuries and preventive health measures
- Medical Knowledge
  - Be able to integrate knowledge of the basic science of ligaments, muscles and tendons (including molecular biology, biomechanics, pharmacology) with clinical care

- Understand the principles of non-operative and operative care in the management of trauma injuries
- Practice Based Learning and Improvement
  - Apply the principles of Evidence Based Medicine to the evaluation, treatment, and prognosis of patients with trauma injuries
  - Organize and lead the trauma session of Journal Club and participate in the weekly trauma conference
  - Actively participate in the process of educating patients and families about issues relating to trauma
- Interpersonal and Communication Skills
  - Demonstrate ability to communicate effectively with patients, families, including the use of effective listening skills, across the spectrum of trauma, diagnoses, and degrees of complexity unique to trauma
- Professionalism
  - Demonstrate professional behavior that is respectful, altruistic, ethically sound, and sensitive to patient dignity
- Systems-Based Practice
  - Understand the role of trauma, and orthopaedic surgery in general, in the context of the larger system
  - Demonstrate a working knowledge of the medical delivery system
  - Practice cost effective care. Be able to demonstrate an appropriate cost effective work-up of a patient with a trauma injury
  - Advocate for patients within the health care system

Specific Learning Objectives:

- Demonstrate knowledge of the basic science aspects of ligament and muscle-tendon injuries
- Demonstrate proficiency in musculoskeletal anatomy including arthroscopic anatomy
- Take an appropriate history and perform an adequate physical examination for patients with a trauma injury
- Demonstrate proficiency in reading imaging studies, especially MRI of the shoulder and knee
- Develop an appropriate differential diagnosis for trauma injuries
- Describe an appropriate patient work-up for skeletal trauma presenting in the ER and clinic.
- Outline the operative and non-operative management of patients with trauma injuries
- Demonstrate an understanding of the unique nature of the pediatric trauma patient and how it affects diagnosis, treatment, and culture
- Understand the basic concepts of soft tissue trauma and effective treatment
- Demonstrate an understanding of the biological principles for rehabilitation of non-operative and operative trauma injuries

## **ORTHO CLINICS**

[http://hospitals.unm.edu/outpt/ortho/gen\\_ortho.shtml](http://hospitals.unm.edu/outpt/ortho/gen_ortho.shtml)

[http://hospitals.unm.edu/outpt/ortho/cancer\\_ctr.shtml](http://hospitals.unm.edu/outpt/ortho/cancer_ctr.shtml)

[http://hospitals.unm.edu/outpt/ortho/peds\\_ct.shtml](http://hospitals.unm.edu/outpt/ortho/peds_ct.shtml)

<http://hospitals.unm.edu/outpt/ortho/lobo.shtml>

[http://hospitals.unm.edu/outpt/ortho/sports\\_med.shtml](http://hospitals.unm.edu/outpt/ortho/sports_med.shtml)

[http://hospitals.unm.edu/outpt/ortho/med\\_arts.shtml](http://hospitals.unm.edu/outpt/ortho/med_arts.shtml)

[http://hospitals.unm.edu/outpt/ortho/peds\\_ct.shtml](http://hospitals.unm.edu/outpt/ortho/peds_ct.shtml)

## **UNM Maps**

<http://hospitals.unm.edu/maps/documents/unmh1.pdf>

<http://hospitals.unm.edu/maps/documents/unmh2.pdf>

<http://hospitals.unm.edu/maps/documents/unmh3.pdf>

<http://hospitals.unm.edu/maps/documents/unmh4.pdf>

<http://hospitals.unm.edu/maps/documents/unmh5.pdf>

<http://hospitals.unm.edu/maps/documents/unmh6.pdf>

<http://hospitals.unm.edu/maps/documents/unmh7.pdf>

## **brbrp Maps**

<http://hospitals.unm.edu/maps/documents/unmh7.pdf>

<http://hospitals.unm.edu/maps/documents/bbrp2.pdf>

<http://hospitals.unm.edu/maps/documents/bbrp3.pdf>

<http://hospitals.unm.edu/maps/documents/bbrp4.pdf>

<http://hospitals.unm.edu/maps/documents/bbrp5.pdf>

<http://hospitals.unm.edu/maps/documents/bbrp6.pdf>