RESIDENTS’ SURGICAL POSTING MANUAL OF TRAUMA

Originally by Mesfin Lemma, M.D. in 2006

Edited & Updated in 2010 by:

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General Guidelines

I. Surgical Posting Hierarchy
   a. Level Ia
      i. Emergency, next available room
      ii. Life/limb threatening
      iii. Immediate trip to O.R.
      iv. Patient transported to O.R. immediately by surgical team
      v. Examples:
         1. Compartment Syndrome
         2. Cauda Equina Syndrome
   b. Level Ib
      To the O.R. within the next 2 hours
   c. Level II
      i. Emergency, surgery within 4 hours
      ii. Examples:
         1. Open fracture
         2. Displaced femoral neck fracture in young patient
d. Level III
   i. Emergency: Cases that cannot wait until the next day.
   ii. To the O.R. within 24 hours
   iii. Must be willing to do case that day. Cannot cancel and repost for following day.
   iv. Examples:
       1. Absess I & D
       2. Some long bone fractures
       3. Polytrauma

e. Standby
   i. Semi-elective
   ii. Basically gets added on for when everything else is done.
   iii. OK to cancel and re-post for following day.
   iv. Examples:
       1. Hip fractures
       2. Ankle fractures
II. WICU beds at Hopkins
   a. At Hopkins, reserve a WICU bed for all geriatric patients and all patients significant co-morbidities.
   b. Often, this is the limiting factor in getting your case done so reserve the bed early. Contact the Central Intensivist via pagerbox as soon as you plan to post for the O.R.
   c. At Bayview, this may be less of an issue because of the Hip Fracture Service.
   d. NOTE: At Hopkins, patients cannot be transported from the MICU, CICU, or SICU for surgery at WCC. (These patients must be transported by purple people or the surgical team and ICU nurse)
Surgical Rep. Numbers

Howmedica/Stryker

Adam Krause (trauma): 410-935-0076
Dwight Goode (trauma): 410-938-0138
Jim Hourihan (Joints): 443-801-9417

Synthes

Tony Cavallio: 443-417-6900

Smith and Nephew

Matt Brock: 301-437-9527
III.  Johns Hopkins/Bayview “Off the Shelf” Set Inventory
   a. Intramedullary Nails (Hopkins + Bayview)
      i.  Adult patient
          1. Femur: Stryker T2 antegrade(piriformis)/retrograde femoral nail
          2. Tibia: Stryker T2 tibial nail
      ii. Pediatric patient
          1. Synthes flexible titanium nails (JHH)
          2. Depuy Ender Nail (Bayview)
   b. External Fixation
      i.  Adult/Pediatric, Hopkins + Bayview
          1. Stryker Hoffman II
          2. Stryker Mini-Hoffman aka Hoffman Compact
          3. Stryker Hybrid Wire Frame
   c. Plate Systems
      i.  4.5 LC-DC Plates (Synthes large frag set)
      ii. 3.5 LC-DC Plates (Synthes small frag set)
      iii. 1/3 tubular plates (Synthes small frag set)
      iv. Pelvic reconstruction plates (Synthes pelvic implant set)
v. Distal radius locking plates (Synthes distal radius plate set)

vi. Tibial plateau buttress plates
   1. Hopkins: Synthes peri-articular set
   2. Bayview: Synthes peri-articular, pre-contoured plates

vii. Calcaneal plates (Synthes foot and ankle set)

d. Bipolar Hemi-arthroplasty
   i. Hopkins
      1. Cemented: Stryker/Howmedica Accolade
   ii. Bayview
      1. Cemented/Press-fit: Stryker/Howmedica

e. Shoulder Arthroplasty
   i. Hopkins
      a. Styker Total Shoulder Arthroplasty
   ii. Bayview
      a. Biomet hemiarthroplasty
      b. Biomet total shoulder arthroplasty
I. Patient Positioning for Proximal Humerus Fractures
   a. Supine
   b. Beach chair position
   c. Donut head holder
   d. Towel with wide paper tape to secure head
   e. Shoulder off edge of bed
   f. Plexiglass under operative side (Osgood)
   g. Roll under scapula (optional)
   h. Table turned 90 degrees with anesthesia staff/equipment at the unaffected side

II. Fluoro C-Arm Position
   a. Fluoro at head of table
   b. Top of C-Arm tilted slightly medial
   c. Bottom of C-Arm tilted slightly lateral
   d. Machine positioned so that it can swing 90 degrees to obtain an axillary view.
Two and Three Part Proximal Humerus Fractures

Consent: CRPP vs. ORIF vs. Hemiarthroplasty vs. Total Arthroplasty
Total O.R. Time: 3 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

I. Percutaneous Pinning
   a. Patient position and Fluoro as above
   b. Maxi-driver
   c. Terminally threaded 2.5 x 150 mm pins (Call)
   d. Ortho, Plastics Set
   e. Lamina spreader
   f. Sling

II. Short humeral Rod/Locking Spiral Blade
   a. Patient position and Fluoro as above
   b. Synthes short rod/spiral blade (call)
      1. Length: 150 mm
      2. Diameter: 8mm distal, 9.5 mm proximal
      3. Locking screws 4.0mm
      4. Spiral blade into humeral head
   c. Maxi-driver
   d. Ortho, Plastic set
e. Synthes small frag set (in room, don’t open)
f. Synthes 3.5 mm cannulated screw set (in room, don’t open)
g. Small Gelpi x2 (cuff retraction – In Frassica Tool Box)
h. #2 Ticron (cuff repair)
i. 1-0 Polysorb (deltoid fascia repair)
j. Sling

III. Blade Plate

a. Patient position and Fluoro as above
b. Synthes 90 degree canulated blade plate (call)
c. Maxi-driver
d. Ortho, Plastic Set
e. Major bone set
f. Cobb elevators
g. Richardson retractor set
h. Ortho smooth Steinman pins
i. Sling
Four-Part Proximal Humerus Fractures

<table>
<thead>
<tr>
<th>Consent: ORIF vs. Hemiarthroplasty vs. Total Arthroplasty</th>
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<tr>
<td>Total O.R. Time: 3 hrs</td>
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<tr>
<td>Level: Add-on vs. Elective</td>
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<td>Surgeon’s Special:</td>
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Hemiarthroplasty

a. Patient position as above
b. No Fluoro
c. Anspach shoulder set
d. Biomet/Stryker shoulder hemiarthroplasty
e. Maxi-driver
f. Ortho, Plastics set
g. Richardson retractor set
h. Cobb elevators
i. Cerebellar retractors x 2
j. 2 packs Simplex bone cement
k. Stryker vacuum
l. Bone brush, small
m. Cement gun
n. Ortho drill bits
o. Pulse lavage with thin flexible nozzle
p. #2 Ticron with free needles
q. 1/8” Hemovac drain
r. Sling
Humeral Shaft Fractures

Consent: IMN vs. ORIF vs. Ex. Fix.
Total O.R. Time: 3 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

I. Intramedullary Nail
   a. Patient Position, Fluoro – As above
   b. Stryker/Howmedica T2 humeral nail set
      1. Diameter: 7mm, 8mm
      2. Length: 160-300 mm
      3. Locking screws: 4.0 mm
   c. Maxi-driver
   d. Ortho, Plastic set
   e. Small Gelpi x2 (cuff retraction – In Frassica Tool Box)
   f. #2 Ticron (cuff repair)
   g. 1-0 Polysorb (deltoid fascia repair)
   h. Sling

II. Open Reduction Internal Fixation
   a. Patient position (per Egleseder) – Figure 2
      1. Posterior Approach
      2. Lateral decubitus
      3. Arm draped over padded Mayo stand
b. Fluoro table  
c. Fluoro C-arm  
d. Sterile 18” turniquette  
e. Bean bag  
f. Ortho, Plastic set  
g. Minor bone set (have available)  
h. Bone forceps tray (have available)  
i. Maxi-driver  
j. Surgairtome (have available)  
k. Synthes large frag set  
  1. Synthes AO basic instrument set  
  2. LC-DC plates  
  3. ASIF Screws  
l. Zimmer table-top plate bender (Egleseder plate bender)  
m. Ortho smooth Steinman pins  
n. Small and medium Surgi-clips  
o. Bipolar electrocautery  
p. Esmark  
q. 1/8” Hemovac drain  
r. Cast cart
Supracondylar Distal Humerus Fracture

Consent: ORIF vs. Ex. Fix.
Total O.R. Time: 2 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

- 90/90 plating
  a. Patient Postion – As above (Figure 2)
  b. Fluoro table
  c. Fluoro C-arm
  d. Bean bag
  e. Sterile 18” turniquette
  f. Ortho, Plastic set
  g. Mini-driver
  h. Surgairtome (have available)
  i. Synthes small frag set
  j. Bone forceps tray (have available)
  k. Pelvic instrument set (long drill bits, reduction clamps)
  l. Pelvic implant set (recon plates)
  m. Synthes mini-frag set
  n. Zimmer table-top plate bender (Egleseder plate bender)
  o. Small and medium Surgi-clips
  p. Bipolar electrocautery
q. 3.5mm cannulated screw set (off the shelf at JHOC only)
r. Bone graft set (if indicated)
s. 1/8” Hemovac drain
t. Cast cart
u. Esmark
v. Sling

For Olecranon Osteotomy add:

a. Richards 6.5 mm cannulated screw set vs. Olecra-nail
b. Synthes wire tray
c. Mini-Sagittal saw
Olecranon Fractures (Tension Band)

Consent: IMN vs. ORIF vs. Tension Band
Total O.R. Time: 2 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

a. Patient position - as above (Figure 2)
b. Fluoro table
c. Ortho, Plastic Set
d. Bone forceps tray
e. Maxi-driver
f. Richard 6.5 mm cannulated screw set (optional)
g. Ortho smooth Steinman pin set
h. Synthes wire tray
i. Bone tamp
j. Esmark
k. Cast cart
Ulnar, Radial Shaft Fractures

Consent: ORIF
Total O.R. Time: 2.5 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

- Patient position – supine
- Arm table
- Fluoro C-arm
- Ortho, plastic set
- Mini-driver
- Synthes/Stryker small frag set
- Zimmer table-top plate bender (Egleseder plate bender)
- Bone forceps tray (have available)
- Synthes/Stryker modular hand set (have available)
- Medium and small Surgi-clips (optional)
- Bipolar electrocautery
- 1/8” Hemovac drain
- Esmark
- Cast cart
Distal Radius Fractures

Consent: ORIF  
Total O.R. Time: 2 hrs  
Level: Add-on vs. Elective  
Surgeon’s Special:

a. Patient postion – supine  
b. Arm table  
c. Fluoro C-arm  
d. Sterile 18” turniquette  
e. Major hand set  
f. Synthes small frag set (have available)  
g. Synthes/Stryker distal radius plate set (Locking plates. For volar plating, per Egleseder)  
h. Synthes/Stryker mini frag set (For dorsal plating, per Egleseder)  
i. Stryker Command power set vs. Mini-Driver  
j. Smooth K-wire set  
k. Wrist arthroscopy set (per Egleseder)  
l. Bipolar electrocautery  
m. Esmark  
n. Cast cart
For External Fixation Add:

a. Howmedica Mini-Hoffmann distal radius set (WCC-1 tray)
b. Howmedica Hoffman Compact Set and Apex Pin Tray (GOR – 2 trays!)
Metacarpal/phalanx Fractures

Consent: IMN vs. ORIF
Total O.R. Time: 2 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

a. Patient position – supine
b. Arm table
c. Sterile 18” torniquette
d. Hand, Ortho major set
e. Synthes/Stryker Modular Hand Set
f. Stryker Command Power Set
g. Smooth K-Wire set
h. Bipolar electrocautery
i. Esmark
j. Cast cart
Lower Extremity

Hip Fractures

Consent: ORIF vs. Cephalomedullary Nail vs. Hemiarthorplasty (bipolar) vs. total arthroplasty
Total O.R. Time: 2.5 hrs
Level: II (for young patients) III
Surgeon’s Special:

I. Hip pinning
   a. Patient position – supine
   b. Fracture table
   c. Fluoro C-arm
   d. Ortho, plastic set
   e. Synthes/Stryker 7.3 mm cannulated screw set
   f. Maxi-driver

II. Hip Screw
   a. Patient position – supine
   b. Fracture table
   c. Fluoro C-arm
   d. Ortho basic set
   e. Major bone set
   f. Maxi-driver
   g. Implants (These first two are DHS which we don’t use too much- maybe remove and put cephalomedullary nail info ie. Gamma and TFN)
1. Hopkins – Howmedica Omega Hip Screw
2. Bayview – Howmedica Alta Hip Screw
h. ADD Synthes 7.3 mm cannulated screw set (for basi-cervical fractures where de-rotational screw may be desired).

**Technical Notes:**
- Omega – Measure 100, Ream 100, Insert 95 vs. 90 screw
- Alta – Measure 100, Ream 100, Insert 105 vs. 110 mm screw

III. Cephalomedullary Nail (Gamma – Stryker vs. TFN – Synthes)
   a. Patient Position – supine
   b. Fracture table
   c. Fluoro C-arm
   d. Stryker/Howmedica Gamma nail
      1. Distal diameter 11mm (Ream 13mm)
      2. Proximal diameter 16mm (Ream 17.5 or 18 mm)
      3. Right vs. Left implants for long nails
      4. Neck-shaft angles: 125, 130, 135 degrees
      5. Length: 320 – 440 mm for long nails (short 180 mm)
e. Maxi-driver
f. Stryker/Howmedica reamer
g. Ball tip guide wire

IV. Bipolar Hemiarthroplasty
a. Patient postion – Lateral decubitus
b. Fluoro table
c. Hip holder/bean bag
d. Howmedica Exeter set/Zimmer bipolar tray
e. Ortho basic set
f. Total hip set
g. Stryker drill/reamer
h. Stryker saw
i. Centrax pan
j. Osteotomes
k. Caliper
l. Sternal needle holder
m. Cement gun
n. #5 Ethibond (Abductor reattachment – for anterolateral approach)
o. Free needles
p. 1/8” Hemovac drain (optional)
q. Abduction pillow
Femoral Shaft Fractures

Consent: IMN vs. ORIF vs. Ex. Fix.
Total O.R. Time: 2.5 hrs
Level: II
Surgeon’s Special:

I. Antegrade IM Nail
   a. Patient position – supine
   b. Fracture table
   c. Fluoro table
   d. Ortho basic set
   e. Guide wire – ball tip
   f. Stryker/Howmedica T2 antegrade/retrograde femoral nail (piriformis entry) vs. Stryker reconstruction femoral nail (troch entry)
      1. Diameter: 9-16 mm
      2. Length: 260 - 460 mm (20 mm increments)
      3. Locking screws: 5mm
   g. Maxi-driver

II. Retrograde IM Nail for Femoral Shaft and Supracondylar Femur Fractures
   a. Patient position – supine
   b. Fluoro table
   c. Fluoro C-arm
d. Radiolucent triangle

e. Ortho basic set

f. Ortho knee set

g. Guide wire – ball tip

h. Stryker/Howmedica T2 antegrade/retrograde femoral nail (specs as above)

i. Maxi-driver

j. 1/8” Hemovac Drain

For Supracondylar femur fractures treated with IM rod add:

a. Large frag set
   1. ASIF screws
   2. Synthes AO basic instrument set

b. Richards 6.5 mm cannulated screw set

c. Small frag set

d. Pelvic instrument set (long drill bits) – have available

e. Pelvic implant set (long screws) – have available

f. Pelvic reduction clamp set

g. Cast cart
Supracondylar Femur Fracture

Consent: IMN vs. ORIF vs. Ex. Fix.
Total O.R. Time: 3 hrs
Level: II
Surgeon’s Special:

I. Dynamic Condylar Screw (DCS)
   - Patient position – supine
   - Fluoro table
   - Fluoro C-arm
   - Radiolucent triangle
   - Ortho basic set
   - Ortho knee set
   - DHS/DCS basic set
   - DCS implant set
   - ASIS screw set (large frag screws)
   - Synthes AO basic instrument set
   - Pelvic implant set (large Weber)
   - Maxi-driver
   - Bone graft tray (if applicable)
   - Robert Jones dressing
   - Cast cart

II. Locking Peri-articular Plate
a. Patient position – supine
b. Fluoro table
c. Fluoro C-arm
d. Ortho basic set
e. Ortho knee set
f. Synthes locking peri-articular condylar plate set
   (Call)
g. Maxi-driver
h. Large frag set
   1. Synthes AO basic instrument set
   2. ASIF Screws
i. Synthes/Stryker small frag set
j. Pelvic implant set (long screws) – have available
k. Pelvic instrument set (long drill bits) – have available
l. Pelvic reduction clamp set
m. Bone graft tray (if applicable)
n. 1/8” Hemovac drain
o. Robert Jones dressing
p. Cast cart
Patella Fracture

Consent: ORIF vs. Tension Band
Total O.R. Time: 2 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

I. Open Reduction Internal Fixation (Tension Band)
   a. Patient postion – supine
   b. Fluoro table
   c. Fluoro C-arm
   d. Radiolucent triangle
   e. Ortho basic set
   f. Ortho knee set
   g. Mini-driver
   h. Drill bit set
   i. Bone forceps tray
   j. Ortho smooth Steinman pins
   k. Synthes wire tray
   l. 14 gauge angiocatheter
   m. Bone tamps
   n. Emark
   o. Knee immobilizer
Tibia Fractures

Consent: ORIF vs. Ex. Fix.
Total O.R. Time: 3 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

I. Tibial Plateau Fractures
   a. Patient Position – Supine
   b. Fluoro table
   c. Fluoro C-arm
   d. Synthes large frag set
      1. ASIF screws
      2. LC-DC plates
      3. Synthes/AO basic instrument set
   e. Richards 6.5 mm cannulated screw set VS.
   f. Synthes 7.0 mm cannulated screw set
   g. Pelvic reduction clamp set
   h. Bone forceps tray (have available)
   i. Small Gelpi x2 (optional, in Frassca Tool Box)
   j. Bone tamp set
   k. Cobb elevators
   l. Maxi-driver
   m. Bone graft tray (if applicable)
   n. Allograft bone (if applicable)
o. Synthes femoral distractor (optional)

p. Robert Jones dressing

q. Esmark

r. 1/8” Hemovac

s. Implants

   1. Hopkins:
      a. Synthes tibial buttress plate set
      b. Available in 5,7,9,11 holes
      c. Left/right specific

   2. Bayview:
      a. Synthes peri-articular plates (outside OR #5)
      b. Available in 4,5,6,8,10 holes
      c. Left /right specific

   3. Alternate Implants
      a. Synthes peri-articular locking plates (Call)
      b. LISS plate (Call) – also available for distal femur fractures.

II. Tibial Nail

   a. Patient position – supine
   b. LARGE bump under knee
   c. Tenet leg holder (Bayview)
   d. Fluoro table
   e. Fluoro C-arm
f. Radiolucent triangle
g. Ortho basic set
h. Ortho knee set
i. Stryker/Howmedica T2 tibial nail
   1. Diameter: 9-14 mm
   2. Length: 270 – 420 mm (15 mm increments)
   3. Locking screws: 5mm
j. Maxi-driver
k. Guide wire – ball tip
l. Howmedica flexible reamers
m. Cast cart (if applicable)

III. Tibial External Fixation
a. Patient position – supine
b. Fluoro table
c. Fluoro C-arm
d. Radiolucent triangle
e. Ortho basic set
f. Ortho Plastic set
g. Maxi-driver
h. Stryker/Howmedica Hoffman Ex-Fix
   1. Stryker/Howmedica Hoffman II Set
   2. Apex pin tray
   3.
IV. Pilon Fractures

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<tr>
<td>Level: Add-on vs. Elective</td>
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<td>Surgeon’s Special:</td>
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a. Patient position – supine  
b. Fluoro table  
c. Fluoro C-arm  
d. Maxi-driver  
e. Ortho Plastic set  
f. Major bone set  
g. Cobb elevators  
h. Bone forceps tray (have available)  
i. Bone graft set (if applicable)  
j. Allograft bone/bone substitute (if applicable)  
k. Esmark
Ankle Spanning Ex-Fix, ORIF fibula, limited ORIF distal tibia

a. Stryker/Howmedica Hoffman Ex-Fix
   1. Stryker/Howmedica Hoffman II Tray
   2. Apex Pin Tray
b. Calcaneal clamp “kick stand” to keep heel off bed in bridging ex-fix application
   1. In WCC, “Ankle Clamp”
c. Synthes small frag set
d. Cannulated 3.5 mm screws
e. Pelvic reduction clamp set
Pilon ORIF

a. Synthes modular foot set
b. Synthes small frag set
c. Synthes mini frag set
d. Synthes/AO basic instrument set
e. Pelvic instrument set (long drill bits, large Weber)
f. K-wires/Ortho smooth Steinman pins
g. Synthes femoral distractor (optional)
h. Synthes medial/distal tibial plate set (Call)
   1. Pre-contoured
   2. Left/Right
   3. Low profile distally, broadens out to LC-DC proximally
i. 1/8” Hemovac drain
j. Robert Jones dressing
k. Cast cart
Ankle Fractures

Consent: ORIF
Total O.R. Time: 2.5 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

I. Open reduction internal fixation
   a. Patient position – supine
   b. Fluoro table
   c. Fluoro C-arm
   d. Ortho, Plastic tray
   e. Mini-driver vs. Stryker Command Power set
   f. Synthes small frag set
   g. Synthes 4.5 mm cannulated screws (optional, for medial mal fractures)
   h. Pelvic reduction clamp set (large Weber, for syndesmosis reduction, if applicable)
   i. Long screws from pelvic set (if syndesmotic fixation needed)
   j. Esmark
   k. Cast cart
Calcaneus Fractures

**Consent: ORIF vs. Ex. Fix.**
**Total O.R. Time: 3 hrs**
**Level: Add-on vs. Elective**
**Surgeon’s Special:**

I. Open reduction internal fixation
   a. Patient position – lateral decubitus with sheets below affected leg to keep it level during the surgery
   b. Fluoro table Bean Bag
   c. Fluoro C-arm
   d. Ortho, Plastic set
   e. Mini-driver vs. Stryker Command power set
   f. Ortho smooth Steinman pin set
   g. Synthes small frag set
   h. Synthes calcaneal plate set
   i. Bone forceps tray
   j. Allograft cancellous chips
   k. 1/8” Hemovac drain
   l. Robert Jones dressing
   m. Esmark
   n. Cast cart
Misc. Foot Fractures

Consent: ORIF vs. Ex. Fix.
Total O.R. Time: 2 hrs
Level: Add-on vs. Elective
Surgeon’s Special:

- a. Patient position – supine
- b. Fluoro table
- c. Fluoro C-arm
- d. Ortho, Plastic set
- e. Synthes small frag set
- f. Synthes mini frag set
- g. Synthes 3.5, 4.5 cannulated screw set
- h. Ortho smooth Steinman pin set
- i. Mini-driver
- j. Lamina spreader
- k. Cast cart
THE PEDIATRIC PATIENT

I. Pediatric Supracondylar Elbow Fractures

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<td>Level: II to add-on</td>
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<td>Surgeon’s Special:</td>
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- a. Patient position – supine
- b. Fluoro C-arm (used as arm table as well)
- c. Ortho, Plastic set
- d. Mini-driver
- e. Ortho smooth Steinman pin set
- f. Cast cart
II. Pediatric Femur Fractures

Consent: Flex IM Nail vs. ORIF vs. Ex. Fix.
Total O.R. Time: 2 hrs
Level: II
Surgeon’s Special:

1. IM Nailing (Requires canal diameter 9.5 or greater)
   a. Patient position – supine
   b. Fracture table
   c. Fluoro C-arm
   d. Ortho, Plastic set
   e. Stryker drill/reamer
   f. Guide wire – ball tip
   g. Synthes universal reamer
   h. Smith and Nephew Trigen nail (through greater troch)
      1. Diameter: 8.5 mm
      2. Length: 240 – 400 mm
      3. Locking screws: 4.5 mm

2. Flexible IM Nailing
   a. Patient positioning – supine
   b. Fluoro table
   c. Fluoro C-arm
   d. Ortho, Plastic set
e. Synthes Titanium Flexible nail set
f. Cast cart – have available

3. External Fixation (for Femur/Tibia)
   a. Patient position – supine
   b. Fluoro table
   c. Fluoro C-arm
   d. Ortho, Plastic set
   e. Maxi-driver
   f. Stryker/Howmedica Hoffman Ex-Fix
      1. Stryker/Howmedica Hoffman II set
      2. Apex pin tray