Orthopedic Joint Surgeon Guidelines for Anesthesia Providers

Below are guidelines for each surgeon in alphabetical order.

Dr. Matsen is grouped with Dr. Warme

We hope that these notes will help facilitate good teamwork in each OR, especially for those of you who do not work regularly with these surgeons.

Please let me know if you find your experience to be different from the guidelines or if you have anything to add.

Thanks,

Jo

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**Howard Chansky**

Types of surgery: Primarily hip & knee replacements

Anesthesia preference: Happy for the anesthesia team to decide what anesthetic is best for the patient.

Remember to check preop coagulation status & postop anticoagulation plans before placing an epidural/peripheral nerve block.

**“Chappie” Conrad**

Types of Surgery: Huge variety of orthopedic oncological procedures

Anesthesia Preference: Happy for the anesthesia team to decide what anesthetic is best for the patient.

Check with Chappie regarding necessity for epidurals, blocks etc as it is not always clear from the patient records how extensive a procedure may, or may not be.

Remember to check preop coagulation status & postop anticoagulation plans before placing an epidural/peripheral nerve block.

Be ready for large blood loss in certain cases such as hemipelvectomy.

**Darin Davidson**

Soft tissue and bone tumor excision cases can be quite variable so it is difficult to have general preferences. I’m always happy to discuss each case at any time.

1. **Biopsy cases**
   - typically shorter cases with discharge same day or following day
   - pain control typically not a significant issue
   - NSAIDS fine

2. **Soft tissue tumor excisions**
   - blocks fine when desirable, but would prefer to discuss in advance if possible
   - NSAIDS fine

3. **Bone tumor excisions**
- pain control usually more of an issue, especially for resections with prosthetic reconstructions
- epidurals for lower extremity cases would be good
- would prefer to discuss about NSAIDS before given

John: "Trey" Green

Days of operation: Wed, and Fri

Usual cases:
- shoulder surgeries (usually on Wednesdays) for recurrent dislocation, rotator cuff tears, repair of fractured clavicle, bicep tendon tears, occasional elbow
- arthromenisectomy, ACL repairs, occasional other outpatient knee surgeries
- occasional repair ruptured Achilles tendon, ankle fractures

Type of recovery: usually outpatient

Type of Patients:
- typically youngish, often Huskie athletes, usually healthy, come from Sports Med clinic across the street
- Frequently bypass pre-anesth clinic because they're healthy

Shoulder surgery
Type of surgery: Arthroscopic, with opening later in some cases
Case duration: usually 1-3 hours
Position: beach chair with head in a helmet for most which would make it very difficult to intubate if the need arose during the case (ie. Intubate before the case starts)
Antibiotics: cefazolin unless allergic, then vancomycin
Anesthesia requests:
- preop interscalene block with ultrasound
- general anesthesia with intubation for the surgery
- paralysis (for intubation and if no block, or failure of motor block, then need relaxation continued initially for the surgery)
- use the BIS and put it on before they position the head in the helmet because you can’t get at the forehead once the helmet is on. Put it high on the forehead so the helmet pad doesn’t dig the BIS pad into the forehead to hard and make divots
- control the blood pressure to minimize bleeding in the surgical field. (I usually plan to keep the blood pressure within 20% of normal lowest baseline – if possible, get sitting blood pressure in preop area to use as a baseline, or get one from the preop physical exam and keep the cuff in the same position during surgery). Never put the cuff on the leg, or the forearm because it will misrepresent (and overestimate) the blood pressure at the level of the brain. Typically, with a block, the blood pressure tends to be low in the sitting position, and frequently need
to back off on the inhalant and therefore it is useful to have the BIS on as a measure of how much you can back off. We sometimes need a low dose infusion of phenylephrine, or at least occasional boluses to maintain an adequate blood pressure. (Without a block, it is more likely that blood pressure may be elevated by the surgery)

- be aware that occasional episodes of bradycardia have been described in the literature in this position (Bezold-Zarisch reflex), probably akin to fainting under anesthesia. Don’t let the heart rate go below 50 – or your asking for it.

Concerns
- BP and perfusion in the sitting position
- nerve injury to the pre or post auricular nerve from the helmet, pressure over the eyeballs due to the forehead pad that goes with the helmet

Preop medication/preparation
- typically, the orthopedic team will order Scopolamine patch, oxycontin 10 mg po, and Celebrex 200 mg po for preop
- if they don’t, you can give them preop – helps prevent pain when block starts to wear off

Postop pain management
- coach the patients about taking surgeon-ordered analgesics at least an hour or two or more before the block is likely to wear off to avoid it wearing off in the middle of the night and patient waking in excrutiating pain. Ideally, it is good if they take their oxycontin about 8:00 pm so that it may hold them til morning with oxycodone for breakthrough pain. At this point in time, the surgeon is not in favor of continuous nerve blocks so we don’t do them
- because they will be needing opioids, make sure you coach them about taking anti-emetics at the same time and load them up intraoperatively

Arthromenisectomy/debridement
Case duration: usually about 45-60 min
Position: supine, arms at the sides on arm boards, tucked in
Anesthesia requests: prefers general but can work with spinal if indicated by patient condition or preference. If so, then could use either bupivacaine 7-9 mg with 25ug of fentanyl, or 1%lidocaine, about 50- 60mg with or without fentanyl 25 ug. (fentanyl causes itching in most, sometimes quite irritating, seems to be improved by propofol infusion)
- typically done with GA with LMA, spontaneous ventilation with sevo or des
- okay to give Toradol 30 mg at end of the case when dressing is on if not NSAID allergic

Arthroscopic ACL repair (quadriceps tendon or allograft)
Type of recovery: outpatient
CONSENT PATIENT preop for postop femoral n block
Case duration: usually about 1 ½-2hrs
Position: supine with arms on arm boards at side
Preop Medication:
Surgical team usually orders preop
  Scopolamine patch
  Celebrex 200 mg po preop
  Oxycontin 10 mg po preop
This helps to prevent postop pain when patients first come to PACU before the femoral n. block is done. Try to avoid giving long acting iv opioids during the case which tend to make the patients nauseated for a long time afterwards.

Anesthesia requests:
- very strong preference for GA followed by postoperative femoral n block in PACU
- typically do GA with LMA with spontaneous ventilation, sevo or des
- make sure they get good anti-emetic prophylaxis intraop
- femoral block in PACU
Antibiotics: usually cefazolin unless allergic, then vancomycin (will need second dose before going home-remind PACU if not already given in the OR)
Femoral n. block: is usually done in PACU with 0.375% bupivacaine with epi 1:200,000. This concentration seems to permit the patient to do isometric exercises with quads which the surgeons want the patients to start as soon as they are awake enough to understand (and their pain controlled)

Achilles tendon repair
Type of recovery: usually outpatient
Position – prone
Antibiotics: cefazolin unless allergic, then vancomycin
Anesthesia requests: general anesthesia with intubation because of the position during surgery
Special requests:
- typically, surgeon prefers that we wait and see how much pain the patient is having before committing to doing a popliteal fossa block which will cure the patients pain if performed in PACU
- CONSENT THE PATIENT preop for the possibility of doing a block postop if it seems appropriate (also check with surgeon for his thoughts on the matter)
- block usually done with 0.375% bupivacaine with epi 1:200,000 either in the prone or lateral position using ultrasound, lasts about 13 hours

Ankle fractures
Type of recovery: limited stay or outpatient
Position – supine
Anesthesia requests: prefer general although spinal would be possible if there was some very important medical reason to use it
Postoperative pain control: prefer patient uses iv/oral opioids, prefer not NSAIDS because of potential effects on bone healing
If the patient has severe pain that can’t be controlled, then a block of some type could be considered after first discussing it with the attending surgeon (i.e., popliteal fossa/saphenous with 0.25% bupiv or 0.5% ropiv). In general, they would prefer not to use regional analgesia because of concerns that it may mask a compartment syndrome of the lower leg.

**Jerry Huang**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Preference for Type of Anesthesia</th>
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<tbody>
<tr>
<td>Trigger Finger</td>
<td>Local/MAC</td>
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<tr>
<td>Carpel Tunnel Release</td>
<td>Open: Local/MAC</td>
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<tr>
<td>De Quervain’s</td>
<td>Local/MAC</td>
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<tr>
<td>Finger Masses</td>
<td>Digital/MAC</td>
</tr>
<tr>
<td>Finger Fractures</td>
<td>Bier</td>
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<tr>
<td>Ulnar Nerve Transp</td>
<td>Usually subcutaneous</td>
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<td></td>
<td>Bier (if thin and long arm)</td>
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<tr>
<td></td>
<td>Otherwise GA</td>
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<tr>
<td>Metacarpal Fractures</td>
<td>Bier</td>
</tr>
<tr>
<td>Dupuytren’s</td>
<td>Bier (simple) or GA</td>
</tr>
<tr>
<td>Distal Radius Fractures</td>
<td>Simple: Bier</td>
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<tr>
<td></td>
<td>Complex: Axillary</td>
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<tr>
<td>Radial Head Fractures</td>
<td>Bier</td>
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<tr>
<td>Radial/Ulnar Shaft Fractures</td>
<td>GA or Axillary</td>
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<tr>
<td>Wrist Arthroscopy</td>
<td>GA</td>
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**Shoulder and Elbow Service**
Types of Procedures:

**Dr. Matsen** does not do arthroscopic procedures. “Smooth and move” (similar in duration and incision size to a subacromial decompression), open rotator cuff repairs, calvicle fractures and acromio-clavicular repairs are most frequently overnight (<24 hr) limited stays. Procedures for recurrent dislocation e.g. Bankart repair with or without a bone block are typically overnight stays. Total shoulder arthroplasty, shoulder hemiarthroplasty (sometimes called “ream and run procedures”), and total elbow arthroplasty procedures usually involve 2 day stays. Proximal humeral fracture ORIFs are less predictable with regard to post-operative disposition as are incision and drainage procedures. The final type of procedure worth noting is a manipulation under anesthesia which is frequently done as an outpatient procedure with a brief period of complete muscle relaxation and airway support in the PACU, if appropriate for the specific patient.

**Dr Warme** does arthroscopic procedures and these patients will frequently be scheduled as outpatients rather than as limited or over-night stays.

**Use of Regional analgesia**

**Dr. Warme**’s patients may be suitable for **interscalene nerve blocks** but these will be discussed with his team and placed postoperatively following a neurological assessment.

**Dr. Matsen**’s patients all receive **general anesthesia** at this time and does not wish to use blocks for post-op pain.

**Intravenous Access**

Even with the most proximal procedures (clavicle and scapular surgery), the arm is prepped into the field so no IV access should be placed on the side of the surgery. The contra lateral upper extremity is obviously the optimal site, but consideration should be given to the fact that the patient will be restricted to the use of that arm for the duration of the hospital stay, making **antecubital IVs less than desirable**. The majority of these procedures are **not associated with rapid blood loss** requiring neither rapid fluid replacement nor intra-operative transfusion; a small number of arthroplasty patients may need post-operative transfusion. Repeat shoulder arthroplasty with component exchange and total elbow arthroplasty can be associated with blood loss in the range of 500 mls, but primary shoulder arthroplasty and hemi-arthroplasty is more frequently associated with blood loss in the range of 200-300 mls.
Dr. Matsen prefers an 18 gauge IV in the opposite arm, avoiding antecubital area. He wishes to avoid foot for IV access.

**Airway Considerations**

Some surgical conditions associated with shoulder and elbow surgery that impact airway management beyond general and patient specific considerations are the need for muscle relaxation for arthroplasty procedures and the less than optimal access to the airway intra-operatively after draping and positioning. In spite of working more distally on the arm, this also applies to total elbow arthroplasty (TEA), as a common working position during TEA is with arm flexed and adducted across the upper chest. An intra-operative hazard that has rarely occurred but deserves obvious consideration and preventive planning is dislodgment of the endotracheal tube or LMA. This has occurred due to the proximity of the surgical field to the airway resulting in unintentional pressure and/or traction transmitted through the drapes to the airway and in longer procedures where perspiration under the drapes loosens the tape. Any discussion regarding the advisability of LMA vs endotracheal tube is beyond the scope here, but dislodgment and near misses have occurred with both types of airway.

**Foley Catheters**

Most procedures are of short enough duration that they do not require foley catheters. For longer arthroplasty procedures the risk benefit considerations include concerns about urinary tract instrumentation leading to UTIs potentially compromising an implant with secondary infection, such that foley catheter placement is not routine. Patients with cardiac disease and those on antihypertensive and diuretic therapy will likely be hypotensive in the semi-Fowler’s position and should be considered for placement of a foley catheter. Patients undergoing ORIF of complex fractures may need to be considered for foley catheter placement as these procedures can be longer with more blood loss expected.

**Position and Draping**

Almost all of Dr. Matsen’s shoulder procedures are done in a semi-Fowler’s or low angle beach chair position without a padded head holder. Elbow procedures are done in the supine position without any rotation of the operating table. Dr. Warne’s arthroscopic procedures are done in the lateral position with an arm traction frame over the operating table but positioning for open procedures is similar to Dr. Matsen’s shoulder and elbow procedures. For most open shoulder procedures, the Bose bar is used. The patient is placed somewhat eccentrically on the table with the arm on the operative side off the table to allow extension and dislocation of the shoulder. This eccentric positioning combined with surgical traction could result in the patient being pulled off the table as the head is
restrained usually by tape only, while the torso is taped circumferentially to the table. More aggressive reinforcement of the tape head restraint could put the brachial plexus at greater risk for stretch injury. The best defense against unintentional patient movement from traction is frequent periodic position checks and reminders to the surgeons if it appears that lateral movement is occurring. Remove the pillow under patient’s head and use a donut for head support.

**Antibiotics**

A proportion of shoulder and elbow patients at UWMC are referrals for failed arthroplasty or continued symptoms after other procedures. If there is a good possibility that pre-existing infection may be the cause of the symptoms then antibiotics will be held until cultures can be obtained.

**NSAIDS**

**Ketorolac is not used for arthroplasties and repair procedures.** It may be used in smooth and move procedures, sub-acromial decompression and manipulation under anesthesia.

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**Dr. Chris Wahl**

**Main specialty:** Arthroscopic Orthopedics (Sports Medicine)

**Background Notes:** Dr. Wahl is a UW Husky Football team physician. He specializes in arthroscopic (scope) procedures of the joints. Most of his patients are young healthy athletes with few comorbidities. The bulk of his practice involves arthroscopic knee procedures, but he also scopes the shoulder and ankle. Occasionally he will do open shoulder procedures or fractures.

**Basic Anesthetic Preferences:** Dr. Wahl prefers his patients to have general anesthesia, and he understands there are medical conditions or patient preferences that would indicate the need for a neuraxial or regional technique. Moreover, when indicated, Dr. Wahl prefers that adjunct regional anesthetic techniques (ie. blocks) be performed in the post-operative period. Regarding PONV, unless contraindicated, scopolamine patches should be applied preoperatively and ondansetron given approximately 30 minutes before emergence from anesthesia.

**Knee Guidelines (ACL’s, PCL’s, Menisectomies):**

- Follow standard preoperative Pavilion protocols
  - Check to see if the surgical team has ordered preoperative PO pain meds
- Discuss possibility of a postoperative regional procedure (femoral nerve block) for the ligamentous procedures of the knee (not needed for menisectomies).
- To OR
- Position patient with feet near the end of the bed (unless contraindicated – airway or other)
- General Anesthetic (LMA unless contraindicated).
- Tourniquet will be placed by Surgical team
  - Set between 250 - 300 mm Hg
  - Inflate TQ when told by Surgeon
- Remove LMA and bring patient to PACU
  - Assessment for post-op block should be made within an hour.

**Shoulder Guidelines:**
- Follow standard preoperative Pavilion protocols
  - Check to see if the surgical team has ordered preoperative PO pain meds
- Discuss possibility of a postoperative regional procedure (interscalene) for all open procedures, and for more involved arthroscopic procedures.
- To OR
- Position patient with head close to the edge of the bed.
- General Anesthetic (ETT preferable d/t positioning).
- Patient will be positioned with a head-stabilizing device making it difficult to access the airway.
- Remove ETT and bring to PACU to evaluate for regional block within an hour.