Appendix 1: Summary of Enhanced Recovery Pathway Anesthesia Protocol for Orthopedic Surgery—Geriatric Hip Fracture

Preoperative:

-Pain Management
- -Fascia iliaca block in ED or < 8 hrs from fracture diagnosis: single injection bupivacaine 0.125-0.25% 30-60 ml
- -Minimize opioids

-Admit to General Internal Medicine Service
-Anesthesia notification and coordination
- - Preanesthetic evaluation, testing and notify Regional Anesthesia Service to perform block (if not already done)
- -Tests: type and screen, CBC, BMP, others PRN
- -Consider On hold for OR 2 u PRBC for Hgb <10
- -Anticoagulation: hold. If coumadin, goal INR <2.0. Consider reversal if >2

-NPO Guidelines
- -No solid food after 2300
- -Clear liquids up to 20 ounces until 2 hours preop: eg. Electrolyte drinks or water

-Delirium prophylaxis (Pre/Intra/Post Op)
- -**AVOID benzodiazepines, anticholinergics, antihistamines, antipsychotics**

-Pre op multimodal analgesia
- -Acetaminophen 15m/kg up to 1000 mg PO
- -Celebrex 400 mg PO
- -Low dose, short-acting opioid PRN
- -Repeat fascia iliaca block if >18 hours since last block

Intraoperative:

-Infection control
- -Abx prophylaxis <60 min pre incision
- -1st line: Cefazolin 2gm IV (3gm if >120kg)
- -2nd line (if anaphylaxis to PCN): clindamycin 900 mg IV

-Thromboembolic prophylaxis: SCDs pre induction but heparin 5000 units SC after spinal complete and if ok by RAS team
-Neuraxial vs GA
- -Neuraxial preferred: bupivacaine 0.75% 1-2ml or 0.5% 1.5 -3ml
- -If GA: mixed anesthetic or TIVA ok, use short acting opioids (minimal), reverse with Sugammadex

-Monitoring
- -Standard ASA monitors
- -1-2 PIVs, no central venous catheter
- -Arterial line as dictated by comorbidities. Consider Flotrac® vs Clearsight®

-PONV Prophylaxis
- -Dexamethasone 0.1 mg/kg up to 10mg
- -Ondansetron 4 mg at end of case

-Fluids: goal euvolemia and normotension
- -Equal amounts Plasmalyte and albumin
- -If hypotension from hypovolemia (SVV >13%), give 250 ml albumin 5% over 5-10 min
- -Once intravascular volume normalized use vasoconstrictors to maintain goal MAP

-Multimodal pain management
- -Ketorolac 15 mg IV if no preop Celebrex (if GFR>30)
- -Acetaminophen 15m/kg up to 1000 mg IV if unable to take preop PO
- -Minimal short acting opioids: fentanyl 1-2 mcg/kg total per case
- -**AVOID long-acting opioids, gabapentinoids, muscle relaxants, dexmedetomidine**
- -Consider ketamine if baseline opioid tolerant and/or baseline chronic pain 0.5mg/kg at induction, 0.1-0.15 mg/kg/hr bolus vs infusion

-Prevention of blood loss:
- -Tranexamic 20mg/kg up to 1 gm IV pre incision, possible 2nd dose at end of case per surgeon request.
- -Cell saver—consider if high blood loss anticipated by surgeon

PACU:

-Pain control
- -Acetaminophen
- -NSAIDS
- -Repeat fascia iliaca block if time elapsed or not done pre op
- -Minimal short acting opioids—fentanyl

-PONV
- -Ondansetron 4 mg IV (total 8 mg in periop period)
- -Consider risk/benefit of delirium if want/need to give other antiemetics

-Fluids: goal directed fluid therapy
-Early oral intake: sips of clear liquids, gum chewing