Hip Fracture Surgical Care Pathway

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Version 7

This evidenced-based, patent-centered pathway has been developed and implemented across Alberta to improve care outcomes, reduce length of stay, decrease readmission rates, and ultimately decrease mortality. Educational resources for both patients/families and providers have been developed to support the pathway implementation.

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	EMS Transport	Emergency
Assessment / Monitoring	• Neurovascular assessment • Vital sign every 30 minutes • Glasgow Coma Scale • Pain assessment	• Systems assessment • Vital signs and Glasgow Coma Score q4h or as ordered • Pain assessment as per hospital protocol • Peripheral neurovascular assessment • Fluid balance monitoring • Initiate pre-operative orders • Initiate data collection re: allergies and alerts • Skin assessment (e.g., Braden Risk Score) • Admission assessment (function, falls history, caregiver)

Consults	• Online Medical Consultation available for EMS
	• Community Health and Pre-hospital Support (CHAPS) referral
		• Orthopedic surgeon
		  ○ History and Physical Examination
		  ○ Consent for surgery
		• Internal medicine as required

Tests / Diagnostics		• CBC, electrolytes, creatinine, glucose • PT/INR - consider with conditions/medications associated with impaired coagulation (liver disease, malnutrition), bleeding history, coagulopathy or on anticoagulant • X-ray AP/lateral affected hip including pelvis (and CT or MRI prn) • CXR – consider for patients with acute/chronic cardiopulmonary disease if it will change management • ECG
Interventions	• Splint only; pelvic binding (no traction) • Position of comfort	• Ensure IV access • If unable to void, bladder scan and use catheter only as required • Titrate oxygen to O_2 saturation $\geq$ 92% **OR** $\geq$ baseline • Pressure ulcer prevention strategies if Braden Score is 18 or less

Medications	• Start IV and use appropriate pain medication as per EMS Pain Management protocol	• Elder friendly dosing of analgesia.
		• Antiemetic: Use Ondansetron
		• Anticoagulant (or SCDs) for VTE prophylaxis
		  ○ Hold Coumadin: administer Vitamin K (5 mg po or IVPB), repeat INR as ordered
		  ○ If history of anticoagulant use, determine last dose taken
		• Medication reconciliation: order patient specific medications as required

Fluid, Nutrition, Elimination	• As per protocol	• IV as ordered • Monitor elimination • Urinary voiding, refrain where possible from indwelling catheter use (particularly males) • Confirm pre-admission (baseline) diet with patient's facility or family • Diet as ordered if not going to the OR
Delirium, Dementia, Depression	• Limit pain control and anti-emetic medications with patients ~ >65 (1/2 dose)	• Use delirium prevention strategies: orientation, fluid enhancement, availability of vision/hearing aids, non-pharmacological sleep enhancement • Assessment for delirium: CAM (Confusion Assessment Method) q8h and if change in patient's clinical status. Call MD if CAM positive. • If distressed, consider pharmacological management only if necessary
Pain Management	• Goal: pain manageable or contact MD. Consider non-verbal pain scales if required. • Consider peripheral nerve block, fascia iliaca block (if available)	
Fall Prevention		• Document falls history with admission assessment • Consider medication review for medications associated with high risk of falls or delirium
Activity / Mobility		• Bedrest: position on either affected or unaffected side in position of comfort • Change position q2h and provide skincare
Teaching		• Pain management • Provide "Patient Waiting on Call" information sheet
Discharge Planning		• Confirm with patient/family re: current home situation and use of resources/ services • Consider pre-injury home/functional assessment
Pt / Family Perspective	• Look for Goals of Care	• Notify family/guardian • Address concerns/questions • Have conversations leading to Goals of Care Designation (GCD)

	Pre-Operative
Assessment / Monitoring	• Systems assessment • Vital signs, peripheral neurovascular assessment, SpO_2, LOC q4h • Pain assessment as per hospital protocol • Fluid balance monitoring: intake/output every shift • Consent for surgery if not done • Finish data collection re: allergies and alerts • Skin assessment completed: pressure ulcer prevention strategies if Braden score 18 or less • Assess for ARO and screen if appropriate • Admission assessment if not done (function, falls history, caregiver) • Alcohol history/management. If CAGE positive, then screen for alcohol withdrawal.
Consults	• Consider consult with Internal Medicine, Geriatrics or Anesthesia as necessary for perioperative management. • Consult to Fracture Liaison Service (FLS) • Discharge planner • Physical Therapy, Occupational Therapy • Dietitian, Social Worker, etc. as required
Tests / Diagnostics	Ensure lab and x-rays done: • CBC, electrolytes, creatinine, glucose, albumin, calcium, magnesium, type and screen, B12 • X-ray AP/lateral affected hip including pelvis (and CT or MRI prn) • ECG
Interventions	• Titrate O_2 to keep $SpO_2 \geq 92\%$ **OR** $\geq$ baseline. Call MD if > 4 L/min. • Complete pre-operative checklist

Medications	• Elder friendly dosing of analgesia. Avoid use of NSAIDs.
	• Antiemetic. Use Ondansetron.
	• Anticoagulant (or SCDs) for VTE prophylaxis
	  ○ Hold Coumadin: administer Vitamin K (5 mg po or IVPB): repeat INR as ordered
	  ○ Hold dabigatran, rivaroxaban, or apixaban
	  ○ If history of anticoagulant use, determine last dose taken
	• Bowel management
	• Medication reconciliation if not already done
	• Antibiotic to OR with patient
	• Acid reflux reduction as indicated

Fluid, Nutrition, Elimination	• IV as ordered • NPO at midnight day of procedure • Urinary voiding, refrain where possible from indwelling catheter use (particularly males)
Delirium, Dementia, Depression	• Use delirium prevention strategies: orientation, fluid enhancement, availability of vision/hearing aids, non-pharmacological sleep enhancement • Assessment for delirium: CAM (Confusion Assessment Method) q8h and if change in clinical status. If CAM is positive, follow delirium management protocol. • If distressed, consider pharmacological management only if necessary
Pain Management	• Goal: pain 3-4/10 (manageable) or contact MD. Consider non-verbal pain scales if required. • Consider peripheral nerve block, fascia iliaca block (if available)
Fall Prevention	• Document falls history with admission assessment • Consider medication review for medications associated with high risk of falls or delirium
Activity / Mobility	• Bedrest: change position q2h and provide skin/heel care • Foot and ankle exercises • DB&C 10 breaths/hour, cough if secretions
Teaching	• Pain management • Introduce Care Pathway to patient/family, provide ‘After Your Hip Fracture’ patient education book • DB&C, foot and ankle exercises • Pillow between knees
Discharge Planning	• Confirm with patient/family re: current home situation and use of resources/services • Consider pre-injury home/functional assessment (e.g., Blaylock tool) • Introduce discharge planning to patient and family; begin to identify discharge options • Determine anticipated day of discharge (ADOD)
Pt / Family Perspective	• Obtain personal directive and Goals of Care Designation (GCD) • Provide emotional support • Address concerns/questions

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	OR / PACU	Day of Surgery – Post-Op
Assessment / Monitoring	• Confirm documentation required for surgery • Systems assessment as per OR/PACU protocol	• Systems assessment, CAM q8h • Skin assessment daily • Vital signs, peripheral neurovascular assessment, SpO_2, LOC, pain assessment, surgical dressing assessment as per protocol • Fluid balance monitoring: intake/output every shift • Review patient history and pre-operative medications
Consults		• Medical follow-up • Notify Physical Therapy, Occupational Therapy • If Fracture Liaison Service (FLS) not consulted preoperatively, order postoperatively
Tests / Diagnostics	• Intra-operative X-ray as required	
Interventions	• Safe surgical checklist completed • Surgery to optimize weight bearing status	• Titrate O_2 to keep $SpO_2 \geq 92\%$ **OR** $\geq$ baseline. Call MD if > 4 L/min. • Reinforce dressing prn • Urinary catheter care bid if required • Change position q2h; pressure ulcer prevention strategies if Braden score 18 or less • IV
Medications	• Antibiotic < 1 hr. prior to skin cut time • Elder friendly dosing of analgesic(s) • Antiemetic • Other medications as ordered	• Elder friendly dosing of analgesic(s) • Regular Acetaminophen dosing (maximum 3g/24h) • Antiemetic. Call MD if nausea is not controlled. • Anticoagulant/DVT prophylaxis • Antibiotics • Initiate bowel management • Reassess and reorder patient specific medications
Fluid, Nutrition, Elimination	• NPO • If Indwelling catheter: monitor urine output • If no indwelling catheter, consider in and out	• Diet as tolerated: high protein high calorie diet (or as ordered) and oral nutritional supplement tid • Urinary voiding, refrain where possible from indwelling catheter use (particularly males)
Delirium, Dementia, Depression		• Use delirium prevention strategies: orientation, fluid enhancement, availability of vision/hearing aids, mobility enhancement, non-pharmacological sleep enhancement • Consider OT consult for behaviours/dementia
Pain Management		• Goal: pain 3-4/10 (manageable) or contact MD. Consider non-verbal pain scales if required.
Fall Prevention		• Follow standard fall prevention protocol and implement individual interventions (involve multidisciplinary team)
Activity / Mobility		• DB&C 10 breaths/hour, cough if secretions • Participate in ADLs • Activity as tolerated, no activity restrictions for hemi arthroplasty and fixations unless specified by surgeon
Teaching		• Provide instruction using ‘After Your Hip Fracture’ book
Discharge Planning		• Care coordinators involved as required • Consider home/functional assessment (e.g., Blaylock tool) if not completed pre-operatively
Pt / Family Perspective		• Notify family spokesperson/guardian • Provide emotional support; address concerns/questions

	Post-Op Day 1	Post-Op Day 2
Assessment / Monitoring	• Systems assessment, CAM q8h • Vital signs q4h • Peripheral neurovascular assessment • Skin assessment daily • Fluid balance monitoring: intake/output every shift • Pain assessment as per hospital protocol • Surgical dressing assessment	• Systems assessment, CAM q8h • Vital signs q shift • Peripheral neurovascular assessment • Skin assessment daily • Fluid balance monitoring: intake/output every shift • Pain assessment as per hospital protocol • Incision check q shift
Consults	• Consultant follow-up as required	• Consultant follow-up as required
Tests / Diagnostics	• CBC, electrolytes, creatinine, magnesium • PT/INR daily if on Warfarin • Call MD if Hgb < 80 or patient symptomatic • Hip x-ray on post-operative date requested	• CBC, electrolytes, creatinine • Call MD if Hgb < 80 or patient symptomatic • Hip x-ray if ordered (POD 2 or 3)
Interventions	• Titrate O_2 to keep $SpO_2 \geq 92\%$ **OR** $\geq$ baseline. Call MD if > 4 L/min required. Maintain O_2 x 24 hours post-op. • Reinforce dressing prn • IV lock if adequate fluid intake • If urinary catheter in use remove POD-1 early AM • Change position q2h; pressure ulcer prevention strategies if Braden score 18 or less	• Titrate O_2 to keep $SpO_2 \geq 92\%$ **OR** $\geq$ baseline. Call MD if > 4 L/min required. D/C if SpO_2 > 92% on room air. • Dressing change as per doctor's order • Change position q2h; pressure ulcer prevention strategies if Braden score 18 or less
Medications	• Elder friendly dosing of analgesic(s) • Regular Acetaminophen dosing (maximum 3g/24h) • Anticoagulant/DVT prophylaxis / Antibiotics • Antiemetic • Initiate Calcium: dietary and supplements 1200 mg • Initiate Vitamin D: 2000 IU	• Elder friendly dosing of analgesic(s) • Minimize narcotics: regular Acetaminophen dosing (maximum 3g/24h) • Anticoagulant/DVT prophylaxis • Antiemetic
Fluid, Nutrition, Elimination	• High protein high calorie diet (or as ordered) and small volumes of oral nutrition supplement (e.g. 90 mL) given tid with medications (excluding bisphosphonates), as ordered • Complete Nutrition Risk Screening by POD 1. Consult dietitian as required per assessment. • Ensure patient has had bowel movement since admission (by POD 2) • Timed toileting QID: if unable to void within 6 hrs. after catheter removal, perform bladder scan and intermittent catheterization if volume > 300 mL or patient has discomfort or feeling of fullness • Post void bladder scan q6h until residual < 200 mL	
Delirium, Dementia, Depression	• Use delirium prevention strategies: orientation, fluid enhancement, availability of vision/hearing aids, mobility enhancement, non-pharmacological sleep enhancement • For acute confusion (CAM positive), follow delirium management protocol • Consider Geriatrics/Seniors Health for acute delirium	
Osteoporosis Strategy	• Defer osteoporosis management to the FLS	
Pain Mgmt.	• Goal: pain 3-4/10 (manageable) or contact MD. Consider non-verbal pain scales if required.	
Fall Prevention	• Follow standard fall prevention protocol and implement individual interventions (involve multidisciplinary team)	
Activity / Mobility	• Mobilize WBAT unless contraindicated • Out of bed with assistance • Activity as tolerated, no activity restrictions for hemiarthroplasty and fixations unless specified by surgeon • DB&C • Encourage participation in own ADLs as able • Physical Therapy assessment/treatments	• Progress ambulation and exercises as tolerated • Activity as tolerated, no activity restrictions for hemiarthroplasty and fixations unless specified by surgeon • DB&C • Encourage participation in own ADLs as able • Physical Therapy treatments
Teaching	• Reinforce pre-operative teaching • Review Care Path • Safe transfer techniques • Falls awareness • Reinforce info from 'After Your Hip Fracture' book	• Review Care Path • Review transfer safety, equipment, including footwear • Reinforce information from 'After Your Hip Fracture' book as required
Discharge Planning	• Confirm ADOD • Consider pre-injury home/functional assessment (e.g., Blaylock tool) • Establish discharge plans/goals with patient/family • Care coordinators/Transition Services as required Consult Social Worker if necessary	• Consider pre-injury home/functional assessment (e.g., Blaylock tool) • Review discharge plan • Care coordinators/Transition Services as required • Confirm discharge location
Pt / Family Perspective	• Address concerns/questions	

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	Post-Op Day 3	Post-Op Day 4
Assessment / Monitoring	• Systems assessment, CAM q8h • Vital signs as per protocol • Peripheral neurovascular assessment • Skin assessment daily • Fluid balance monitoring: intake/output every shift • Pain assessment as per hospital protocol	
Consults	• Consultant follow-up as required	
Tests / Diagnostics	• CBC, electrolytes, creatinine • PT/INR daily if on Warfarin • Call MD if Hgb < 80 or patient symptomatic • Hip x-ray on post-operative date requested	• As ordered • Call MD if Hgb < 80 or patient symptomatic
Interventions	• Titrate O_2 to keep $SpO_2 \geq 92\%$ **OR** $\geq$ baseline. Call MD if > 4 L/min required. D/C if $SpO_2 > 92\%$ on room air. • Dressing change as per doctor's orders • Change position q2h; pressure ulcer prevention strategies if Braden score 18 or less • Discontinue saline lock after blood work results assessed	
Medications	• Elder friendly dosing of analgesic(s) • Transition to oral analgesics • Minimize narcotics: regular Acetaminophen dosing • Anticoagulant/DVT prophylaxis • Antiemetic	• Elder friendly dosing of analgesic(s) • Minimize narcotics: regular Acetaminophen dosing • Anticoagulant/DVT prophylaxis • Antiemetic
Fluid, Nutrition, Elimination	• High protein high calorie diet (or as ordered) and small volumes of oral nutrition supplement (e.g. 90 mL) given tid with medications (excluding bisphosphonates), as ordered • Timed toileting QID • Ensure patient has had bowel movement since admission • Encourage po fluids if not contraindicated	• High protein high calorie diet (or as ordered) and small volumes of oral nutrition supplement (e.g. 90 mL) given tid with medications (excluding bisphosphonates), as ordered • Ensure proper elimination; timed toileting QID
Delirium, Dementia, Depression	• Use delirium prevention strategies: orientation, fluid enhancement, availability of vision/hearing aids, mobility enhancement, non-pharmacological sleep enhancement • For acute confusion, follow delirium management protocol • Consider Geriatrics/Seniors Health for acute delirium	
Osteoporosis Strategy	• Defer osteoporosis management to the FLS	
Pain Management	• Goal: pain 3-4/10 (manageable) or contact MD. Consider non-verbal pain scales if required.	
Fall Prevention	• Continue fall prevention strategies • If deemed an ongoing risk to fall, consider OT in-home consult	• Fall prevention strategies
Activity / Mobility	• Progress ambulation and exercises as tolerated • DB&C • Encourage participation in own ADLs as able • Physical Therapy treatments • OT assessment/intervention of ADLs and review of home equipment needs if plan for discharge home	
Teaching	• Review: Care Path, transfer safety, equipment including footwear • Reinforce information from 'After Your Hip Fracture' book as required	
Discharge Planning	• Review discharge plan • Care coordinators/Transition Services involvement as required • Confirm discharge location	
Pt / Family Perspective	• Address concerns/questions	

	Post-Op Day 5 to Transfer / Discharge	Day of Discharge or Transfer
Assessment / Monitoring	• Systems assessment / skin assessment daily • Vital signs, pain assessment, peripheral neurovascular assessment as per hospital protocol • CAM q8h x 14 days. When > 14 days post-operative reduce to daily and prn if change in patient's clinical status.	
Consults		• Consultant follow-up as required • B ook and/or inform of follow-up appointments • Discharge Summary: copy family doctor
Tests / Diagnostics	• As ordered	• As ordered • Arrangements or follow-up made for outpatients or home collection service (lab tests), including GP
Interventions	• Titrate O_2 to keep $SpO_2 \geq 92\%$ **OR** $\geq$ baseline. Call MD if > 4 L/min required. D/C if $SpO_2 > 92\%$ on room air. • Dressing change as per doctor's orders • Change position q2h; pressure ulcer prevention strategies if Braden score 18 or less	• Staples removed 14 days post-operatively • Home Care referral as required • Home equipment arrangements confirmed • Consider OT referral specifically for an in-home (environmental) fall risk assessment
Medications	• Elder friendly dosing of analgesic(s) • Minimize narcotics: regular Acetaminophen dosing • Anticoagulant/DVT prophylaxis • Consider bisphosphonate therapy • Antiemetic	• Medication reconciliation (confirm discharge medications vs. home) • Consider bisphosphonate therapy • Anticoagulant/DVT prophylaxis • Discharge prescriptions
Fluid, Nutrition, Elimination	• High protein high calorie diet (or as ordered) and small volumes of oral nutrition supplement (e.g. 90 mL) given tid with medications (excluding bisphosphonates), as ordered • Discontinue supplement after discharge unless RD consult advises to plan for continued supplementation. • Ensure proper elimination; timed toileting QID as required	
Delirium, Dementia, Depression	• Consider delirium prevention strategies: orientation, fluid enhancement, availability of vision/hearing aids, mobility enhancement, non-pharmacological sleep enhancement • For acute confusion, follow delirium management protocol • Consider Geriatrics/Seniors Health for acute delirium • Consider OT consult for cognitive assessment when medically stable • If CAM positive in hospital, include in Discharge Summary	
Osteoporosis Strategy	• Defer osteoporosis management to the FLS	
Pain Management	• Goal: pain 3-4/10 (manageable) or contact MD. Consider non-verbal pain scales if required.	
Fall Prevention	• Fall prevention strategies	• Fall prevention strategies • If fall risk factors persist, ensure the receiving facility or Home Care services is aware and appropriate referrals initiated
Activity / Mobility	• Progress ambulation and exercises as tolerated • DB&C • Encourage participation in own ADLs as able • OT assessment/intervention of ADLs and review of home equipment needs if plan for discharge home • Physical Therapy treatments	
Teaching	• Review Care Path, transfer safety, equipment including footwear • Review Home Exercise program	<u>Pts returning home able to verbalize/demonstrate:</u> • Correct weight bearing status • Exercise program • Signs and symptoms of infection • Independent with aids and/or home support • How to contact community support as needed (Home Care, private practice/community rehab) • When to contact family GP and/or ortho surgeon
Discharge Planning	• Designate ALC if required	• Confirm discharge plan and ensure discharge criteria met • Ensure appropriate level of care arranged • Complete Orthopedic Transfer Order if transferring
	• For patients assessed to be malnourished: 1. Ensure nutrition care plan is part of transfer of care to facility 2. Consider community referral for nutrition follow up	
Pt / Family Perspective	• Address concerns/questions; patient/family expresses confidence in activity level and safe precautions • Patient or caregiver able to demonstrate administration of DVT prophylaxis medication, or alternate arrangements have been made	

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