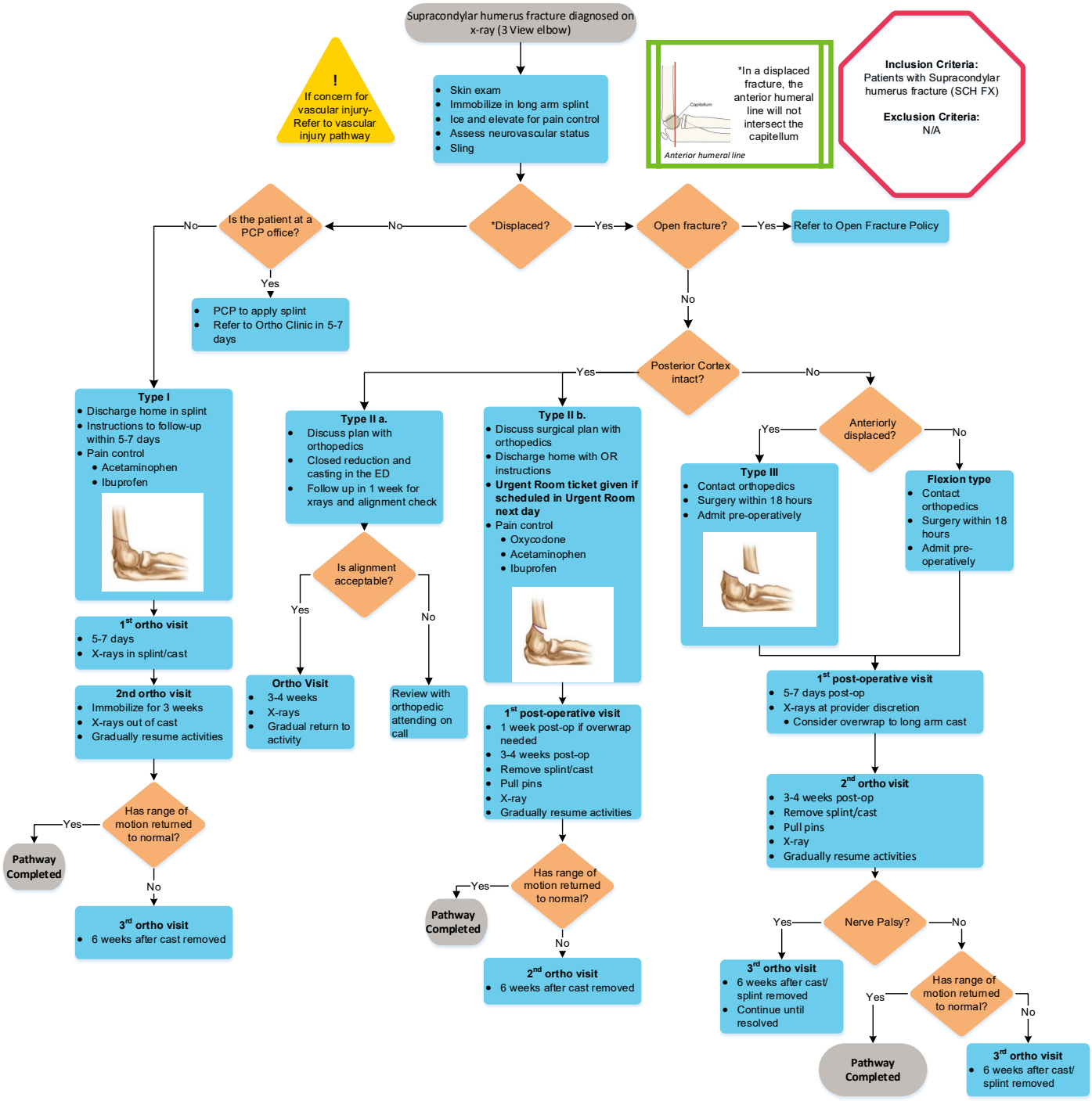
SUPRACONDYLAR HUMERUS FRACTURE (SCH FX)

ALGORITHM. Supracondylar Humerus Fracture



Algorithm: Vascular Injury[5]

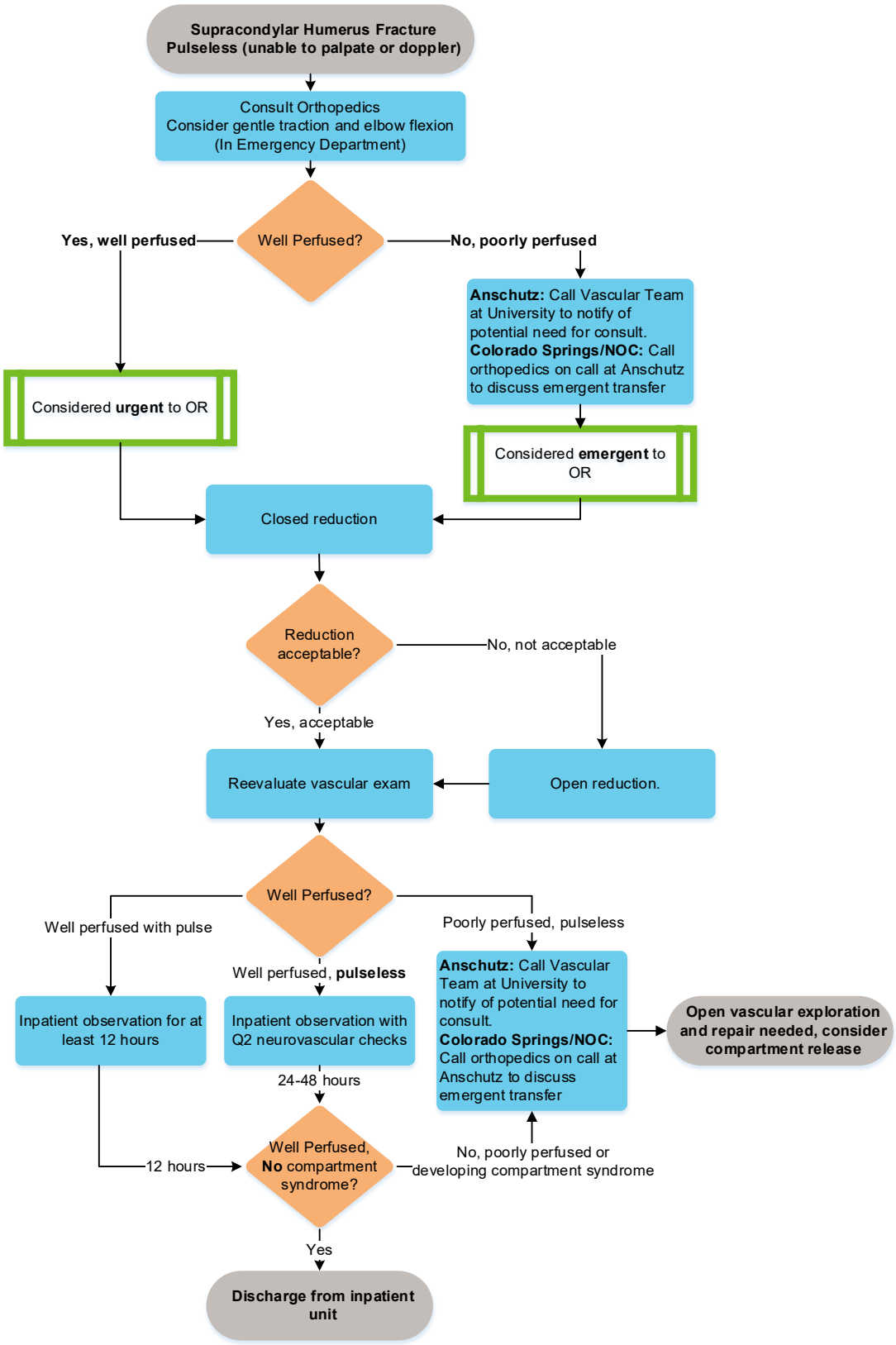


TABLE OF CONTENTS

TARGET POPULATION

Inclusion Criteria

- Patients with supracondylar humerus fracture (SCH FX)

Exclusion Criteria

- Not Applicable

INITIAL EVALUATION, CLINICAL MANAGEMENT, AND IMAGING

Clinical assessment

- Soft tissue swelling
- Ecchymosis
- Skin puckering
  - Sign of considerable soft-tissue damage
  - Results from proximal segment piercing brachialis muscle and engaging deep dermis[6]
- Bleeding/wounds
  - Open fracture (refer to open fracture policy for antibiotic recommendations)

Assess for vascular injury and Neurological deficits

- Refer to Vascular Injury Pathway
- Vascular compromise occurs in approximately 6 to 20% of children with type III supracondylar humerus fracture (SCH fx)[2,4,6]

- Neurologic injury occurs in 10-20% of patients
  - Median nerve/anterior interosseous nerve most commonly injured[2,4,6]

Radiographs

- Obtain true anterior/posterior (A/P) and lateral elbow radiographs if not available[1]

Assess for other injuries

- Ipsilateral forearm fractures increase risk for development of compartment syndrome[6]

Assess pain

- Use pain assessment strategies that are appropriate to the age/development level of the patient
- Refer to Pain Assessment and Management Policy

Determine need for surgical fixation

- See Algorithm
- Goal for time to OR is less than 18 hours
- Open fracture or poorly perfused hand after reduction are indications for emergent surgery[3]

THERAPEUTICS

- Pain control – oral, IV, or intranasal medication
- Apply long arm posterior splint
- Ice and elevation for swelling and pain control

MONITORING

- Neurovascular status
  - Continuous pulse oximetry allows the nurse to objectively measure perfusion[1]
- Pain control

PARENT | CAREGIVER EDUCATION

- How to evaluate neurovascular status
- Pain control measures
- Return precautions
- Splint/cast care
- NPO and pre-op check-in instructions – Urgent Room Ticket (Anschutz campus only)
- Provide family/caregiver education handout

In Care of Kids Handouts:

- Cast Splints and Braces for Immobilization (English and Spanish)

POST-OPERATIVE DISCHARGE CRITERIA

- Acceptable bone alignment
- Pain control acceptable
  - Admit to observation unit if control of pain, swelling, or neurovascular status is an issue (All Type III fractures to be admitted to observation post-operatively for monitoring)

FOLLOW-UP

- Follow-up in 5-7 days for Type III with orthopedic care team for clinical assessment, neurovascular evaluation and overwrap of cast or splint. X-rays may be taken (2 view elbow) in cast/splint at the discretion of the provider.
- Follow-up in 3-4 weeks for Type II with orthopedic care team for splint/cast removal and pin removal. X-rays (2 view elbow) and pin site evaluation after removal.
- Further follow-up determined by provider
- Recommendations for follow-up in 6 weeks only if range of motion has not returned to normal, concerns for pin site infection, or if nerve palsy present

RELATED DOCUMENTS

- ED/UC Suspected Extremity Fracture Clinical Pathway
- Opioid Prescribing Practices Clinical Pathway

APPENDIX A: ORTHOPEDIC URGENT ROOM TICKET (ANSHUTZ CAMPUS ONLY)

- Tickets given to any patient scheduled for next day outpatient surgery
- Should be given out at any CHCO ED or Urgent Care
- Inform patients and families that limb and/or life-threatening injuries could delay their surgery.
- Instruct families to call numbers on the card to confirm their arrival and surgery time the day of surgery.

APPENDIX B: SUPRACONDYLAR HUMERUS INFORMATION SHEET

Orthopedic Institute – Pediatric Orthopedic Trauma Program

SUPRACONDYLAR HUMERUS FRACTURE

What is a supracondylar fracture?

- Supracondylar fractures are the most common fracture of the elbow in children.
- These fractures are the result of trauma to the elbow, most often from a fall from height (monkey bars are a common culprit), or other sports or leisure activities.

How are supracondylar fractures treated?

- These fractures are treated differently depending on the severity.
- The most stable fractures can be treated with a cast or splint.
- More complicated and unstable fractures may need surgery. Surgery usually includes putting temporary pins in the bone in order to hold the fracture in place.

What should we do about pain?

- Pain with these injuries usually happens with swelling. Please keep your child's elbow elevated above their heart and place ice on the area.
- You may utilize Acetaminophen and Ibuprofen for pain.
- Your doctor may also prescribe a narcotic pain medication for severe pain.

- How long will my child be in a cast and when will I follow up?
- Each child's fracture is different; however, the total time in cast or splint is typically around 3-4 weeks.
- Repeat x-rays are done when your child returns for their 3-4 week appointment to see if the fracture is healed enough to come out of their cast. Complications or slower healing may require more time in a splint or cast
- For more severe fractures, one extra visit may be required. You will need to follow-up in one week after surgery to get x-rays in the splint or cast to make sure the fracture has not moved. Then in 3-4 weeks to have the cast removed.

How do the pins come out?

- The pins used to hold the fracture in place come out through the skin.
- These are taken out in clinic typically after 3-4 weeks and do not require surgery or sedation.
- There may be minor discomfort associated with pin removal. Please feel free to give your child some pain medication before coming to clinic to get the pins out.

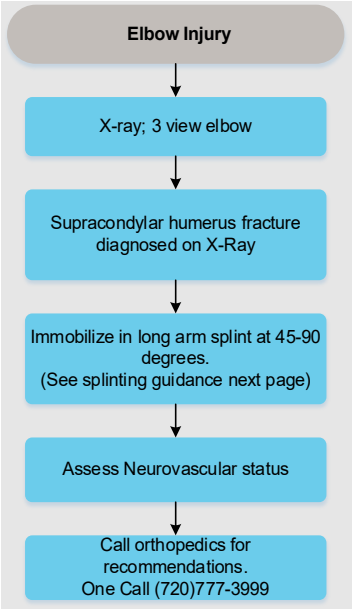
What problems could my child have after this injury?

- Please monitor your child for increased pain not controlled with oral medications, or any decrease in feeling or presence of tingling in the fingers or hand. Please let your provider know of any concerns immediately.
- Most children will not have full motion or strength of the cast arm for up to 6 weeks after cast removal. This usually comes back with time and does not require occupational therapy.

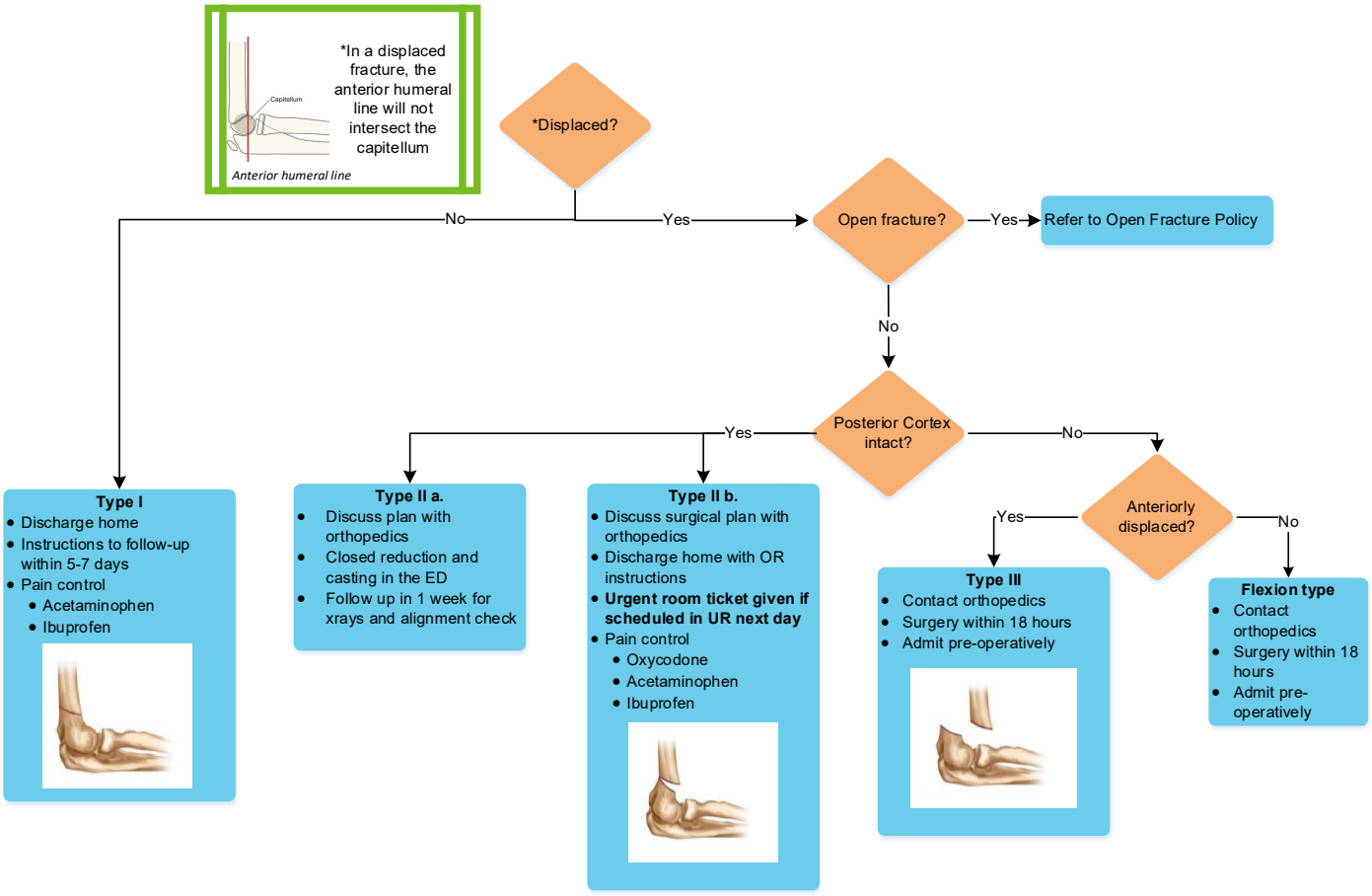
Please call the orthopedic trauma nurse line at 720-777-0115 with any questions or concerns.

APPENDIX C: PCP QUICK REFERENCE GUIDE

Evaluation of Elbow Injury:



Fracture Type with Treatment Recommendations:



SPLINTING PRINCIPLES

Long Arm Posterior Splint

- Extends from the axilla over the posterior elbow to the distal palmar crease
- Position of Function: 90 degree flexed elbow
- Forearm is neutral and the wrist is slightly extended

Application

- Measure dry splint next to the area being splinted or on the contralateral extremity
  - Add 1 to 2 cm at each end to allow for shrinkage that occurs during wetting, molding, and drying
- If cotton padding available, apply to extremity adding additional layers to bony prominences
- Wet splint and wring out excess moisture
- Place splint on ulnar aspect of arm and mold to the contours of the arm
  - Use palm to mold to avoid pressure point dimples
  - Take caution to avoid creases and wrinkles in the splinting material
- Splint secured with ACE wrap, wrapping distal to proximal
- Recheck neurovascular status post application

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APPROVED BY

Clinical Pathways and Measures Committee – December 18, 2023
Pharmacy & Therapeutics Committee – December 18, 2023
Anschutz Trauma Committee: January 30, 2024
Colorado Springs Trauma Committee: January 30, 2024

MANUAL/DEPARTMENT	Clinical Pathways/Quality
ORIGINATION DATE	January 4, 2011
LAST DATE OF REVIEW OR REVISION	December 18, 2023
COLORADO SPRINGS REVIEW BY	 Michael DiStefano, MD Chief Medical Officer, Colorado Springs
APPROVED BY	 Lalit Bajaj, MD, MPH Medical Director, Clinical Effectiveness

REVIEW/REVISION SCHEDULE

Scheduled for full review on December 18, 2027

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CHÚ Ý: Nếu bạn nói Tiếng Việt, có các dịch vụ hỗ trợ ngôn ngữ miễn phí dành cho bạn. Gọi số 1-720-777-9800.

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ध्यान दनु होस्तपाइले नेपाल बोल्नहन्छ भन तपाइको निम्त भाषा सहायता सवाहरू नःशल्क रूपमा उपलब्ध छ । फोन गनु होसर् 1-720-777-9800 ।

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