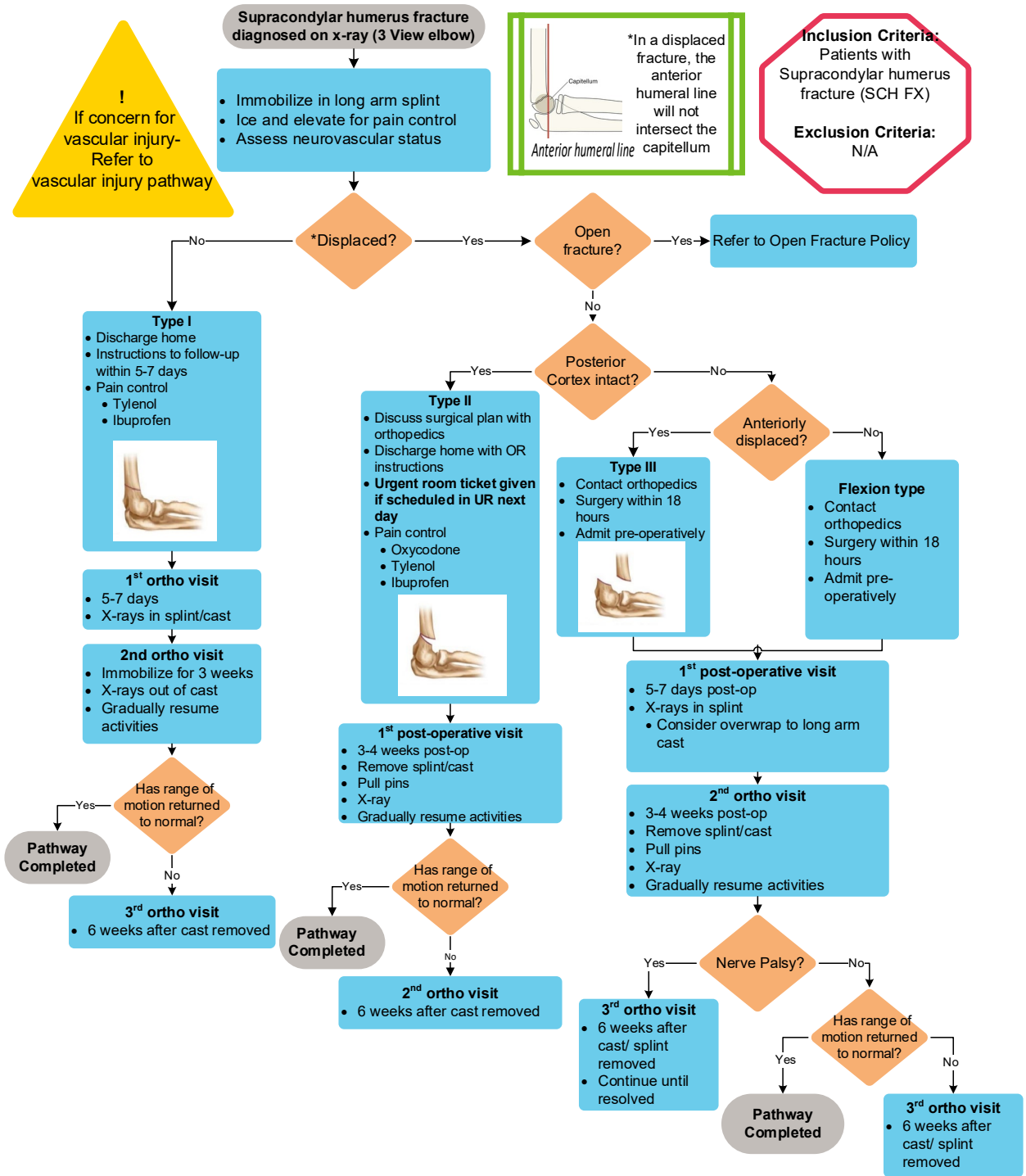


SUPRACONDYLAR HUMERUS FRACTURE (SCH FX)

ALGORITHM. Supracondylar Humerus Fracture



Algorithm: Vascular Injury⁵

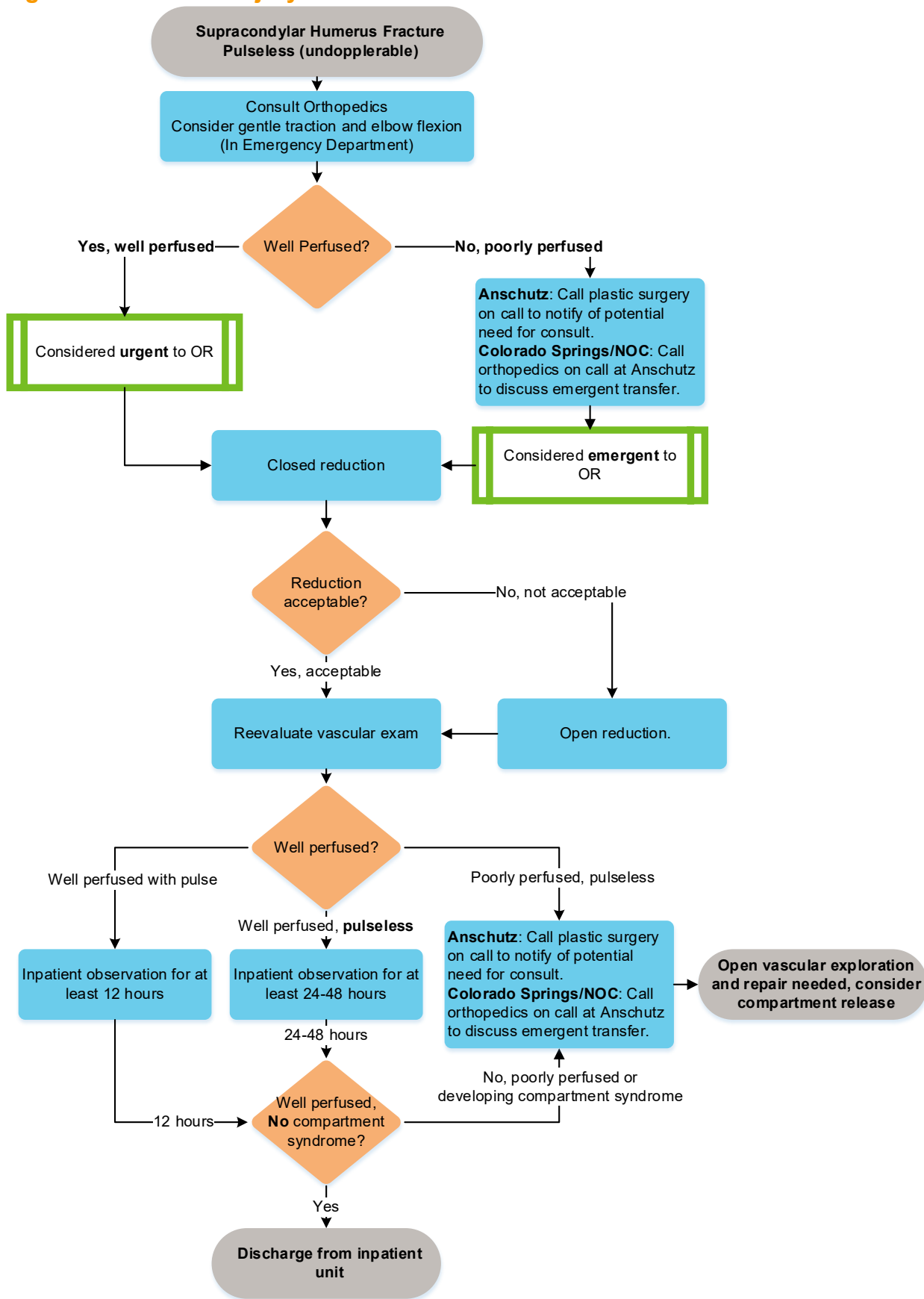


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TARGET POPULATION

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 dermis⁶
- 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 available¹

Assess for other injuries

- Ipsilateral forearm fractures increase risk for development of compartment syndrome⁶

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 surgery³

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 perfusion¹
- 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:

- Casts, 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 or swelling 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 x-rays (2 view elbow) in splint/cast, clinical assessment, neurovascular evaluation and cast placement if not casted in OR
- 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 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
- Exclusions: First case, give instructions to come in at the appropriate time.
- Should be given out at any CHCO ED or Urgent Care
- Patient and family should be given tentative OR and Check in time, and instructed to call numbers on the card to confirm their time the day of surgery.



ORTHOPEDIC URGENT ROOM TICKET

Patient Name: _____

Surgery Date: _____

Surgeon: _____

No solid food or non-clear liquid after: _____

Clear liquids (water, apple juice, sprite) until: _____

Please call between 6-6:30 a.m. on the day of surgery to receive updates on surgery time.

Monday - Friday: 720-777-8241
Saturday: 720-777-4403
Sunday: 720-777-6492

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 Tylenol 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 immobilization time is typically around 3-4 weeks.
- Stable fractures will require follow-up in 3-4 weeks for repeat x-rays to make sure your child is well enough healed to come out of their 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.
- Complications or slower healing may require more time in a splint or cast.

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?

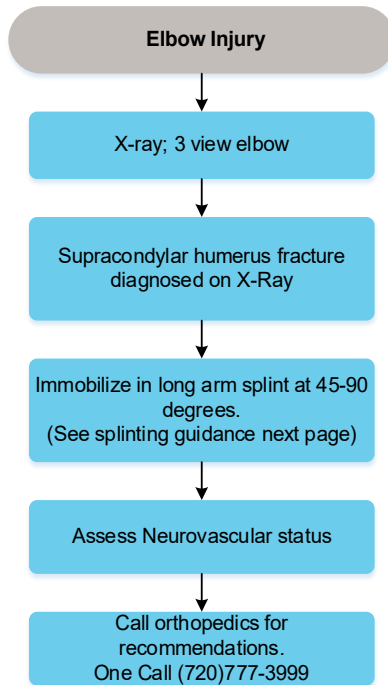
- Please monitor your child for increased pain not controlled with oral medications, or any decrease in feeling in the fingers or hand. Please let your provider know of any concerns immediately.
- Most children will not have full motion or strength of the cast arm for up to 6 weeks after cast removal.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



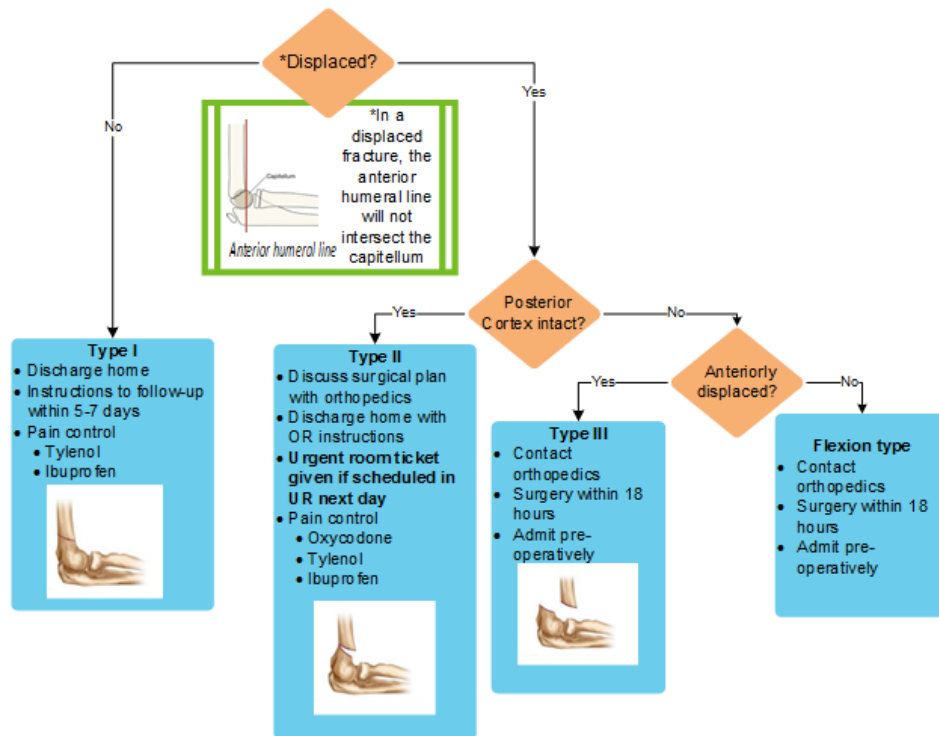
**Please call the orthopedic trauma nurse line at 720-777-0115
with any questions or concerns.**

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



REFERENCES



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6. Omid R, Choi P, Skaggs D. Supracondylar humeral fractures in children. *J Bone Joint Surg Am.* 2008; 90(5): 1121-32.

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APPROVED BY

- Clinical Pathways and Measures Committee –October 24, 2017
- Trauma Committee- October 17, 2017
- Pharmacy & Therapeutics Committee – N/A

MANUAL/DEPARTMENT	Clinical Pathways/Quality
ORIGINATION DATE	January 4, 2011
LAST DATE OF REVIEW OR REVISION	March 15, 2019 (Colorado Springs alignment)
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 October 24, 2021

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