ORTHO MDM ACCELERATOR™

For **physicians** and **advanced practice providers** working in Acute/Urgent Care, Emergency Medicine, Family Medicine & Occupational Medicine

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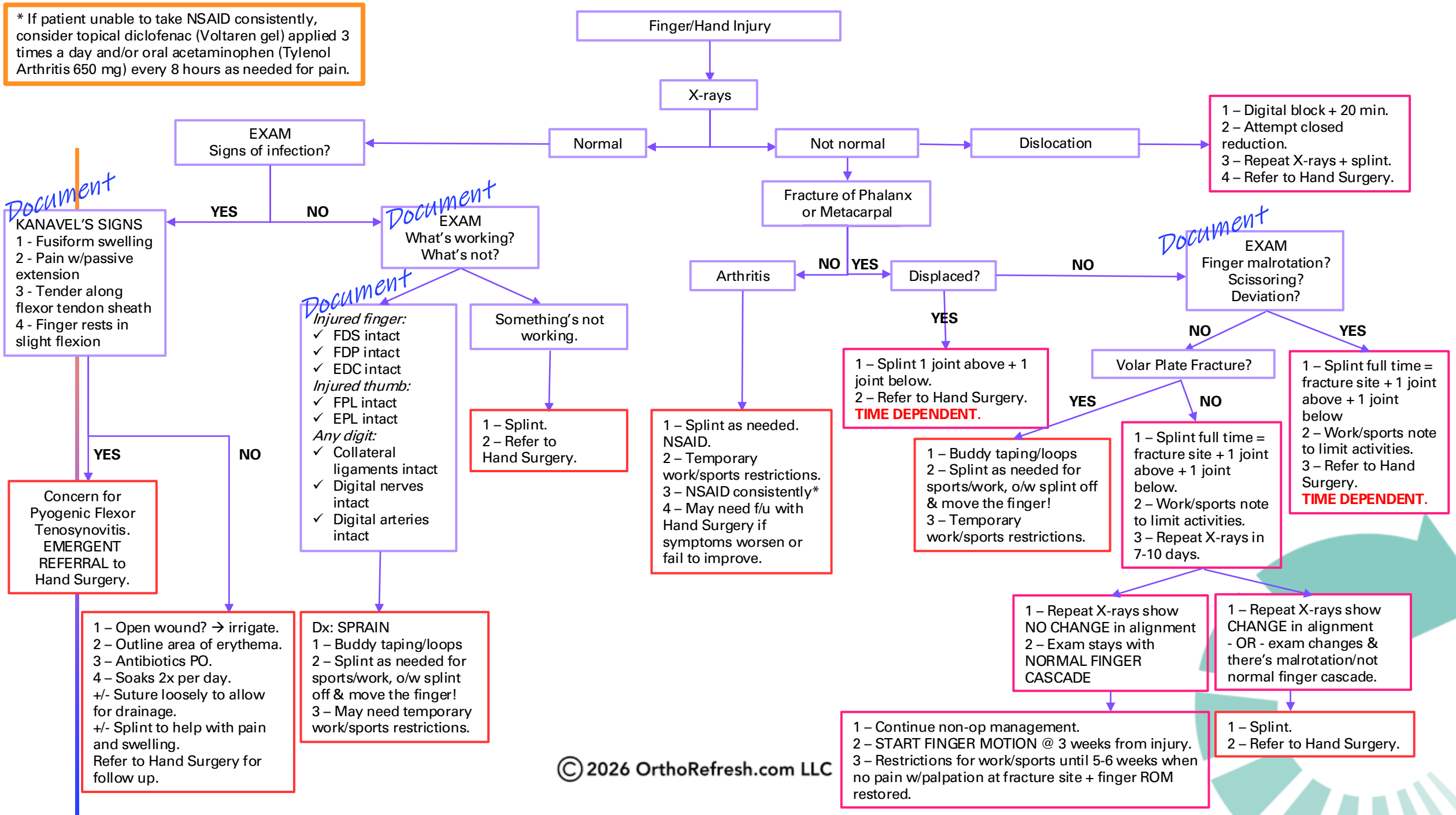
This is a starting point! Clinical decision-making is still integral.

This is not exhaustive of all diagnoses.

The Ortho MDM Accelerator™ algorithms are specific to skeletally mature patients.



FINGER/HAND INJURY TREATMENT ALGORITHM


* If patient unable to take NSAID consistently, consider topical diclofenac (Voltaren gel) applied 3 times a day and/or oral acetaminophen (Tylenol Arthritis 650 mg) every 8 hours as needed for pain.
Finger/Hand Injury
X-rays
Normal
Not normal
Dislocation
1 – Digital block + 20 min.
2 – Attempt closed reduction.
3 – Repeat X-rays + splint.
4 – Refer to Hand Surgery.
EXAM
Signs of infection?
Document
KANAVEL'S SIGNS
1 - Fusiform swelling
2 - Pain w/passive extension
3 - Tender along flexor tendon sheath
4 - Finger rests in slight flexion
YES
NO
Document
EXAM
What's working?
What's not?
Document
Injured finger:
✓ FDS intact
✓ FDP intact
✓ EDC intact
Injured thumb:
✓ FPL intact
✓ EPL intact
Any digit:
✓ Collateral ligaments intact
✓ Digital nerves intact
✓ Digital arteries intact
Something's not working.
1 – Splint.
2 – Refer to Hand Surgery.
YES
NO
Concern for Pyogenic Flexor Tenosynovitis. EMERGENT REFERRAL to Hand Surgery.
1 – Open wound? → irrigate.
2 – Outline area of erythema.
3 – Antibiotics PO.
4 – Soaks 2x per day.
+/- Suture loosely to allow for drainage.
+/- Splint to help with pain and swelling.
Refer to Hand Surgery for follow up.
Dx: SPRAIN
1 – Buddy taping/loops
2 – Splint as needed for sports/work, o/w splint off & move the finger!
3 – May need temporary work/sports restrictions.
Fracture of Phalanx or Metacarpal
Arthritis
NO
YES
Displaced?
1 – Splint as needed.
NSAID.
2 – Temporary work/sports restrictions.
3 – NSAID consistently*
4 – May need f/u with Hand Surgery if symptoms worsen or fail to improve.
YES
1 – Splint 1 joint above + 1 joint below.
2 – Refer to Hand Surgery.
TIME DEPENDENT.
1 – Buddy taping/loops
2 – Splint as needed for sports/work, o/w splint off & move the finger!
3 – Temporary work/sports restrictions.
NO
Document
EXAM
Finger malrotation?
Scissoring?
Deviation?
NO
YES
Volar Plate Fracture?
YES
NO
1 – Splint full time = fracture site + 1 joint above + 1 joint below.
2 – Work/sports note to limit activities.
3 – Refer to Hand Surgery.
TIME DEPENDENT.
1 – Splint full time = fracture site + 1 joint above + 1 joint below.
2 – Work/sports note to limit activities.
3 – Repeat X-rays in 7-10 days.
1 – Repeat X-rays show NO CHANGE in alignment
2 – Exam stays with NORMAL FINGER CASCADE
1 – Repeat X-rays show CHANGE in alignment
- OR - exam changes & there's malrotation/not normal finger cascade.
1 – Continue non-op management.
2 – START FINGER MOTION @ 3 weeks from injury.
3 – Restrictions for work/sports until 5-6 weeks when no pain w/palpation at fracture site + finger ROM restored.
1 – Splint.
2 – Refer to Hand Surgery.
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WRIST INJURY/PAIN TREATMENT ALGORITHM

* If patient unable to take NSAID consistently, consider topical diclofenac (Voltaren gel) applied 3 times a day and/or oral acetaminophen (Tylenol Arthritis 650 mg) every 8 hours as needed for pain.

Wrist Injury/Pain

X-rays

No Fracture or Dislocation

Arthritis

Document
EXAM
Where's the pain?
Radial? Volar?
Dorsal? Ulnar?

NO

YES

1 – Splint!
Option for Velcro brace (HME) vs. Non-removable short arm splint (volar slab vs. thumb spica vs. gutter)
2 – NSAID consistently for short period of time*
3 – Work/sports note w/temporary restrictions (optional).
4 – Activity: pain will be the guide.
5 – Follow up 2-3 weeks for repeat exam. Still having a lot of pain or snuffbox tenderness, then repeat x-rays.
But if getting better, no new x-rays.
6 – Anticipate full recovery by 5-6 weeks from injury.

ARTHRITIS TOOLBOX – wrist splint, NSAID consistently*, etc.
Temporary work/sports restrictions.
May need f/u with Hand Surgery if symptoms worsen or fail to improve after 6+ weeks of conservative treatment.

Fracture or Dislocation

Dislocation

1 – Splint!
2 – URGENT Referral to Hand Surgery!

Fracture

Triquetral Fracture

1 – Splint!
Velcro wrist cock-up brace.
2 - Work/sports note w/temporary restrictions.
3 – Activity: pain will be the guide.
4 – Follow up 3-4 weeks for recheck, no x-rays needed. Update work note. Start wrist ROM.
5 – Anticipate full recovery by 5-6 weeks from injury.

Scaphoid Fracture

1 – Splint!
Non-removable Thumb spica vs. Short Arm Splint.
2 - Work/sports note w/ restrictions.
3 – Refer to Hand Surgery.

Distal Radius Fracture

DISPLACED

1 – Closed reduction + splinting!
2 – Activity: keep elevated @ the level of heart or higher!
Move the fingers but do not use them.
Ice/cold pack in the armpit 20 min at a time, repeat every 1-2 hrs for pain.
3 – Work/sports note w/ restrictions.
4 – Pain Medicine: OTC meds for daytime pain, Rx for opioid for sleeping (your discretion on quantity)
5 – Refer to Hand Surgery!

NON-DISPLACED

1 – Splint!
Option for Velcro brace (HME) vs. Non-removable short arm splint
2 – Activity: keep elevated @ the level of heart or higher!!!
Move the fingers but do not use them.
Ice/cold pack in the armpit 20 min at a time, repeat every 1-2 hrs for pain.
3 – Work/sports note w/temporary restrictions.
4 – Pain Medicine: OTC meds for daytime pain, Rx for opioid for sleeping (your discretion on quantity)
5 – Follow up 7-10 days to repeat wrist x-rays.
Change in alignment → refer to Hand Surgery.
No change in alignment → continue non-op management, return 4-6 weeks for recheck and start wrist ROM. Work/sports restrictions continue until wrist motion & strength returns @ 8+ weeks.

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ELBOW INJURY/PAIN TREATMENT ALGORITHM

* If patient unable to take NSAID consistently, consider topical diclofenac (Voltaren gel) applied 3 times a day and/or oral acetaminophen (Tylenol Arthritis 650 mg) every 8 hours as needed for pain.

Elbow Injury/Pain

X-rays

No Fracture or Dislocation

Effusion?

NO

YES

1 – Sling for comfort but okay to take off for AROM.
2 – Temporary activity modifications
3 – Follow up in 10-14 days for repeat x-rays.

Arthritis

NO

YES

Document

EXAM
Where's the pain?
Lateral? Medial?
Anterior? Posterior?

1 – NSAID consistently for a short period of time*
2 – Heat modalities
3 – Activity modifications
4 – Temporary work/sports restrictions.
5 – After pursuing above treatments for at least 4-6 weeks and still painful, refer to Ortho to discuss next steps.

Distal Biceps Tendon INTACT?

NO

YES

Distal Biceps Tendon Rupture

1 – Sling
2 – URGENT Elbow MRI without contrast
3 – Activity: no l/p/p with that hand.
4 – Refer to Orthopedics
TIME DEPENDENT.

Concern for ligament injury or acute tendon strain?

YES

NO

1 – Rest from activity + gentle AROM
2 – PT – formal therapy for guided motion and strengthening exercises
3 – NSAID
4 – Refer to Orthopedics

NSAID consistently for short period of time*
PT
Activity modifications ***plus the following…***
DDX:
Olecranon bursitis → Compressive elbow sleeve
Lat/Med epicondylitis → Counterforce Elbow Strap vs. wrist splint, ice/cold pack
Radial tunnel syndrome → OT/PT, ice/cold pack
After pursuing above treatments for at least 6 weeks and still symptomatic, refer to Ortho to discuss next steps.

Fracture or Dislocation

Dislocation

1 – Attempt reduction.
2 – Repeat xrays after reduction.
3 – Long Arm Splint
4 – EMERGENT Referral to Orthopedics!

Fracture

Radial Head Fracture?

NO

YES

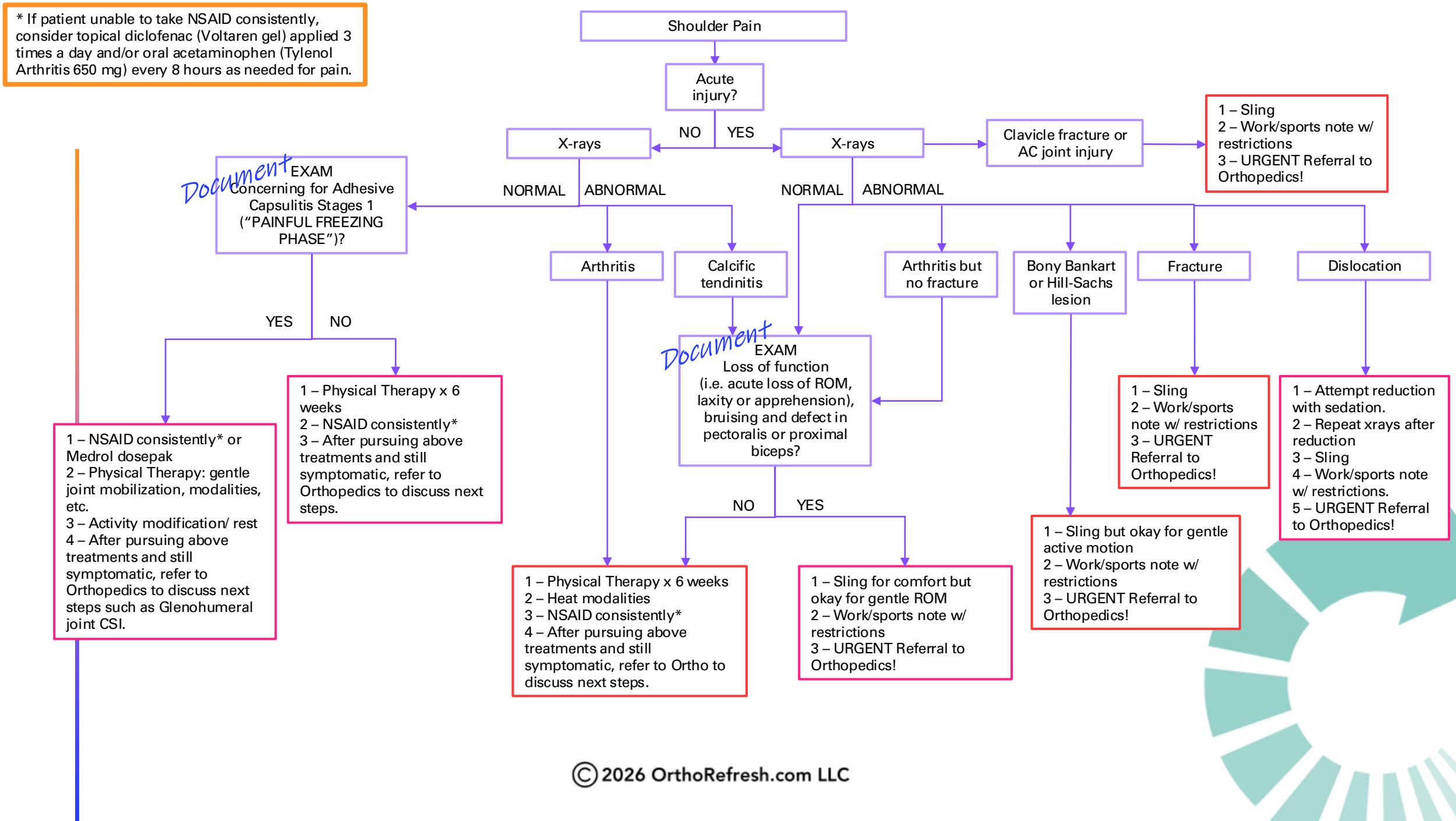
1 – Long Arm Splint!
2 – Sling to support arm when walking, otherwise, out of sling and rest arm on several pillows to elevate.
3 – Move the fingers but do not use them.
4 – Ice/cold pack in the armpit 20 min at a time, repeat every 1-2 hrs for pain.
5 – Work/sports note w/ restrictions.
6 – Pain Medicine: OTC meds for daytime pain, Rx opioid for sleeping (your discretion on quantity)
7 – CONSULT Orthopedics to review fracture pattern and urgency of referral!

1 – Sling
2 – If non-displaced or minimally displaced, okay for gentle AROM!
2 - Work/sports note w/temporary restrictions.
3 – Activity: no l/p/p with that hand.
4 – Refer to Orthopedics

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SHOULDER PAIN TREATMENT ALGORITHM

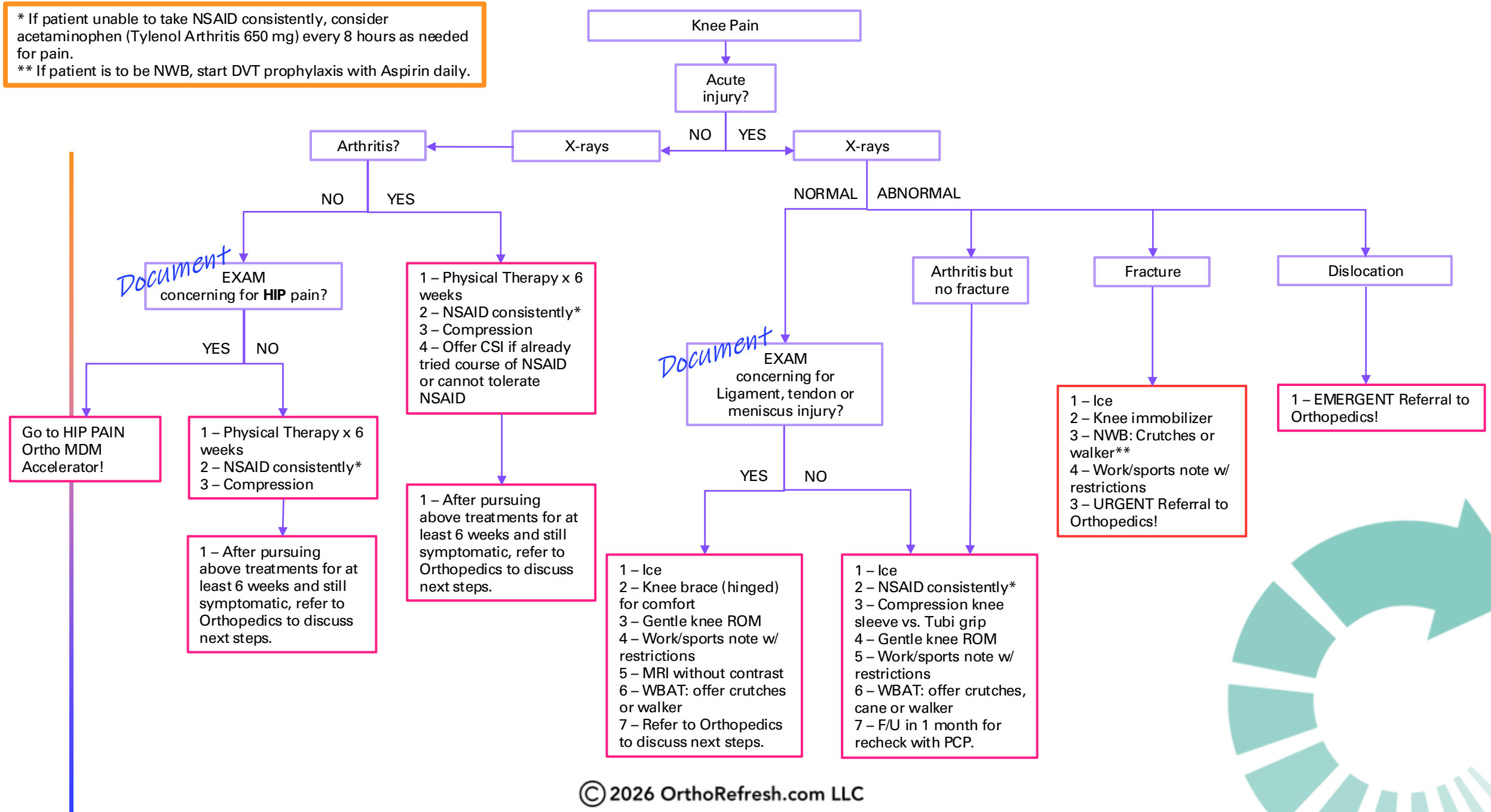
* If patient unable to take NSAID consistently, consider topical diclofenac (Voltaren gel) applied 3 times a day and/or oral acetaminophen (Tylenol Arthritis 650 mg) every 8 hours as needed for pain.



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KNEE PAIN TREATMENT ALGORITHM

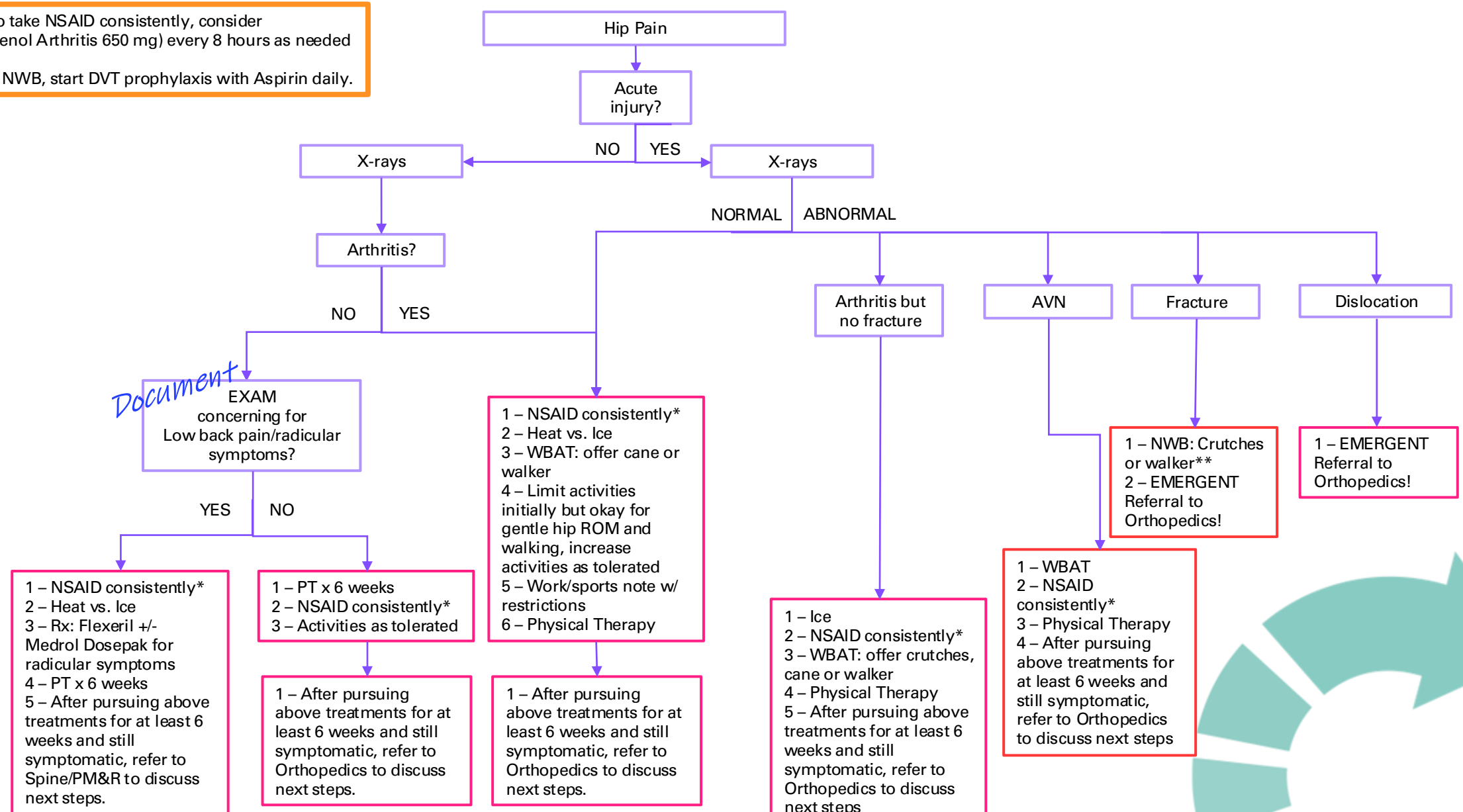
* If patient unable to take NSAID consistently, consider acetaminophen (Tylenol Arthritis 650 mg) every 8 hours as needed for pain.
** If patient is to be NWB, start DVT prophylaxis with Aspirin daily.



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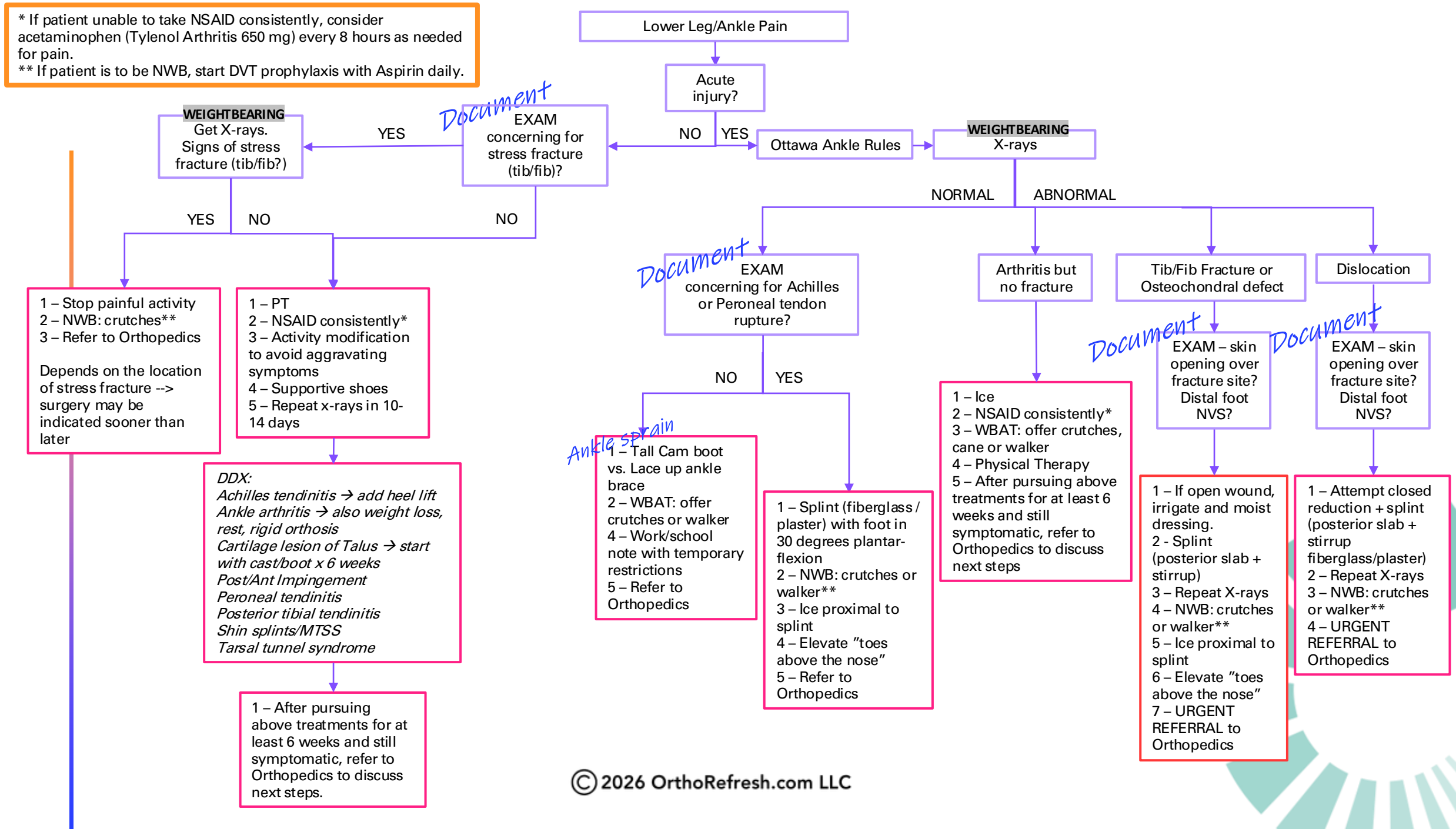
HIP PAIN TREATMENT ALGORITHM

* If patient unable to take NSAID consistently, consider acetaminophen (Tylenol Arthritis 650 mg) every 8 hours as needed for pain.
** If patient is to be NWB, start DVT prophylaxis with Aspirin daily.



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FOOT + ANKLE PAIN TREATMENT ALGORITHM



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* If patient unable to take NSAID consistently, consider acetaminophen (Tylenol Arthritis 650 mg) every 8 hours as needed for pain.
** If patient is to be NWB, start DVT prophylaxis with Aspirin daily.

Foot Pain

Acute injury?

NO

YES

WEIGHT BEARING X-rays

EMERGENT REFERRAL if signs of Midfoot Compartment Syndrome
- Severe swelling
- Severe pain out of proportion to exam
- Dislocation
- Open fracture
- Abnormal neurovascular exam

NORMAL

ABNORMAL

Turf Toe (Great MTP joint sprain)

1 – Treatment varies based on Grade 1, 2 or 3
2 – Stiff-soled shoe
3 – Ice and rest
4 – NSAID consistently*
5 – Taping the Great MTP joint
6 – Refer to Orthopedics

Lisfranc injury

Document

EXAM – plantar foot ecchymosis, cannot weight-bear, swelling?

1 – Tall CAM boot or Splint (posterior slab + stirrup)
2 – NWB: crutches or walker**
3 – Ice proximal to splint
4 – Elevate "toes above the nose"
5 – Avoid NSIADs
6 – URGENT REFERRAL to Orthopedics

Tarsal fracture

Document

EXAM – skin opening over fracture site? Distal foot NVS?

1 – If open wound, irrigate & moist dressing.
2 – Splint (posterior slab + stirrup) vs. Bulky Jones splint
3 – Ice proximal to splint
4 – NWB: crutches or walker**
5 – Avoid NSAIDs
6 – URGENT REFERRAL to Orthopedics

Metatarsal fracture

Document

EXAM – skin opening over fracture site? Distal foot NVS?

1 – If open wound, irrigate and moist dressing.
2 – Hard-soled shoe vs CAM boot
3 – WBAT: offer crutches or walker
4 – Ice
5 – Elevate "toes above the nose"
6 – Avoid NSAIDs
7 – Refer to Orthopedics

Phalangeal fracture

1 – If open wound, irrigate and moist dressing.
2 – If displaced: digital block + reduce
3 – Buddy tape
4 – Stiff-soled shoe with open toe box
5 – Ice + elevate
6 – WBAT
7 – Avoid NSAIDs

Refer to Orthopedics if:
- fx associated w/dislocation
- displaced Hallux fx
- intra-articular fx at MTP joint
- obvious angulation deformity
- open fx

WEIGHT BEARING Get foot X-rays. Signs of stress fracture?

YES

Document

EXAM concerning for stress fracture?

NO

YES

NO

1 – Stiff-soled shoe vs. CAM boot
2 – Stop painful activity
3 – Refer to Orthopedics

1 – NSAID consistently*
2 – Activity modification to avoid aggravating symptoms
plus the following…

DDX:
Adult flat foot/Posterior Tibial Tendon Disorder → PT, lace-up ankle brace vs. CAM boot x 4-6 weeks
Bunion (1st MTP) / Bunionette (5th MTP) → wide toe box shoe vs. orthotic
Hallux Rigidus (1st MTP arthritis) → wide toe box shoe vs. rocker sole vs. orthotic
Metatarsalgia → orthotic
Midfoot arthritis → weight loss, orthotic vs. Arizona brace
Morton's neuroma → soft wide toe box shoe with metatarsal pad proximal to MTP joints
Plantar fasciitis → PT, ice, orthotic, don't go barefoot
Posterior heel pain → PT, ice, heel lift
Sesamoiditis → orthotic vs. footwear modification

1 – After pursuing above treatments for at least 6 weeks and still symptomatic, refer to Orthopedics to discuss next steps.

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QUESTIONS OR CONCERNS?



Vanessa JS Smith, PA-C
info@OrthoRefresh.com