Montreal Children's Hospital Emergency Department Fracture Guideline

This document is designed to assist physicians working in our tertiary care emergency department in caring for children (under 18 years of age) with traumatic injuries.

The recommendations contained within this guideline do not preclude the need for a complete and thorough patient assessment, or indicate an exclusive course of action. Variations taking individual patient circumstances into account may be appropriate.

For additional assistance or advice, please call the on-call orthopedic or plastics service for immediate advice – they are available 24/7.

All open injuries or those with neurovascular impairment require urgent management in consultation with the appropriate surgical specialty. The guidelines in this document pertain to closed fractures only.

If there is significant swelling or the potential of significant swelling, a 3-way slab should be used to immobilize the extremity rather than a circumferential cast.

For orthopedic follow-up, please fill out a consult form and the follow-up x-ray requisition.

When indicated ex. "1 week with X-Ray" → patient to present to clinic and then go for x-ray IN CAST

When indicated ex. "1 week with X-Ray OOC" → patient to present to clinic, have cast removed, and then go for x-ray OUT OF CAST

For hand injuries, safe position is defined as wrist extension at 20 degrees, metacarpo-phalyngeal (MCP) joint at 70 degrees flexion and the inter-phalyngeal (IP) joints in full extension. Options for immobilization type depend on which digit(s) immobilized and include volar or dorsal slabs, ulnar or radial gutter, or properly positioned aluminum splint.

Please direct comments or suggestions to Dr Sasha Dubrovsky at sasha.dubrovsky@mcgill.ca

Approved by MCH Divisions of Emergency, Trauma, Orthopedic and Plastic Surgery, April 2012

UPPER EXTREMITY
Consult ORTHOPAEDICS for follow-up

Abbreviations: **Above elbow = A/E** **Below elbow = B/E**
Out of cast = OOC **Salter-Harris Classification = SH**

Fracture	Details	Indication to reduce	Cast type	Follow up guidelines
Radius &/or Ulna	Buckle		Removable splint or B/E	No sports 4 weeks f/u primary MD PRN or 4 weeks with x-ray OOC
	SH-1 undisplaced		Removable splint or B/E	3 weeks with x-ray OOC
	SH-2 undisplaced		B/E Molded	1 week with x-ray
	SH-1,2 displaced	Reduce in ED	B/E Molded or A/E	1 week with x-ray
	SH- 3,4,5	CALL ORTHOPEDICS	B/E Molded or A/E	1 week with x-ray
	Distal undisplaced (greenstick or transverse)		B/E Molded or A/E	1 week with x-ray
	Distal displaced (greenstick or transverse)	Reduce in ED >15 degree pre-pubertal ≥ 5 degree post-pubertal	B/E Molded or A/E	1 week with x-ray
	Shaft(s) undisplaced		A/E	1 week with x-ray
	Shaft(s) displaced	Reduce in ED	A/E	1 week with x-ray
	Head undisplaced		A/E	3 weeks with x-ray OOC
	Head displaced	CALL ORTHOPEDICS	A/E	1 week with x-ray
Elbow	Dislocation	Reduce in ED	A/E	1 week with x-ray
	Olecranon undisplaced		A/E	1 week with x-ray
	Olecranon displaced	CALL ORTHOPEDICS	A/E	operative
	Lateral condyle	CALL ORTHOPEDICS	A/E	usually operative <1 week with x-ray
	Medial epicondyle displaced	CALL ORTHOPEDICS	A/E	1 week with x-ray
	Medial epicondyle undisplaced		A/E	3 weeks with x-ray OOC
	Effusion (fat pad sign)		A/E	3 weeks with x-ray OOC

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Fracture	Details	Indication to reduce	Cast type	Follow up guidelines
Humerus	Supracondylar Type I		A/E	3 weeks with x-ray OOC
	Supracondylar Type II or III (displaced)	CALL ORTHOPEDICS	A/E	operative
	Neck or Shaft		Sling or Stevenson	1 week with x-ray
Shoulder	Dislocation	Reduce in ED	Sling or Stevenson	2 weeks
Clavicle	Pre-pubertal (<12 yo) displaced or undisplaced		Sling or Stevenson "for comfort"	No contact sports x 2months Primary MD or Ortho 4-6 weeks ± x-ray
	Post-pubertal and undisplaced		Sling or Stevenson "for comfort"	4-6 weeks with x-ray
	Post-Pubertal and displaced or comminuted or tenting		Sling or Stevenson	Within 3-7 days to discuss operative option

LOWER EXTREMITY
Consult ORTHOPAEDICS for follow-up

Abbreviations: **Above knee = A/K** **Below knee = B/K**
Non-walking cast = NW **Walking cast = WC**
Out of cast = OOC

Fracture	Details	Indication to reduce	Cast type	Follow up guidelines
Hip	Dislocation	CALL ORTHOPEDICS		
Femur	All types of fractures	CALL ORTHOPEDICS		
Knee	Patellar dislocation	Reduce in ED	Zimmer	2-3 weeks
	Patellar fracture or dislocation with associated osteochondral fragment	CALL ORTHOPEDICS	Zimmer	
	Effusion without fracture		Compressive ace bandage or Zimmer	"knee sprain kit" 2-3 weeks
Tibia &/or Fibula	Tibial tuberosity avulsion with loss of active extension	CALL ORTHOPEDICS		
	Tibial spine	CALL ORTHOPEDICS	A/K NW	1 week with x-ray
	Shaft undisplaced		A/K NW	1 week with x-ray
	Shaft displaced	CALL ORTHOPEDICS	A/K NW	1 week with x-ray
	Toddler's fracture		B/K WC	4 weeks with x-ray OOC
	Suspected toddler's fracture	Option 1: Watchful waiting Option 2: B/K WC		If option 2: 3 weeks with x-ray OOC
Ankle	Sprain		Compressive "U" foam with ace bandage	"Ankle sprain kit"
	Distal fibula undisplaced (SH-1,2 and avulsions)	Option 1: ankle sprain Option 2: B/K WC		Either option, 3 weeks with x-ray OOC
	Distal tibia undisplaced Including SH-1,2		B/K NW	1 week with x-ray
	Distal tibia or fibula displaced SH-1,2	Reduce in ED	B/K NW	1 week with x-ray
	Displaced/Unstable Tib-Fib	CALL ORTHOPEDICS	A/K NW	1 week with x-ray
	Tillaux or Triplane fracture	CALL ORTHOPEDICS	A/K NW	1 week with x-ray
	Spiral fibula (Weber a,b,c)		B/K NW	1 week with x-ray

LOWER EXTREMITY
Consult ORTHOPAEDICS for follow-up

Abbreviations:

Above knee	**= A/K**	**Below knee**	**= B/K**
Non-walking cast	**= NW**	**Walking cast**	**= WC**
Out of cast	**= OOC**	**Digit Number**	**= D#**

Fracture	Details	Indication to reduce	Cast type	Follow up guidelines
Metatarsal	D1 Undisplaced		B/K WC	4 weeks with x-ray OOC
	D2-5 Undisplaced		Hard shoe or B/K WC	4 weeks with x-ray OOC
	Intra-articular or displaced	CALL ORTHOPEDICS	B/K WC	1 week with x-ray OOC
	Base 5th Avulsion		Hard Shoe or B/K WC	3 week with x-ray
	Jones fracture (5th metatarsal)		B/K NW	4 week with x-ray
	Stress fracture 5th metatarsal "dancer's fracture"		B/K NW	4 week with x-ray
Phalynges	D1 (proximal phalynx)	Reduce if clinical deformity	B/K WC	
	D2-5	Reduce if clinical deformity	Hard shoe ± buddy tape	4 week PRN

HAND & WRIST
Consult PLASTICS for follow-up

Abbreviations:	**Digit**	**= D**	**Metacarpal**	**= MC**
	Distal inter-phalyngeal	**= DIP**	**Metacarpal-phalyngeal**	**= MCP**
	Proximal inter-phalyngeal	**= PIP**	**Range of motion**	**= ROM**

Fracture	Details	Indication to reduce	Cast type	Follow up guidelines
D2-5 Distal Phalynx	Tuft	Repair nail bed lacerations if nail avulsed in ED	Splint DIP	Primary MD as needed If repaired, next clinic
	Mallet		24/7 splint in hyperextension	1 week
	Shaft (unstable)	Reduce in ED angulated or scissoring	Splint DIP in extension	If remains angulated or unstable, f/u 1 week All others, 3 weeks
D2-5 Middle/Proximal Phalynx	Buckle, SH-1,2	Reduce in ED angulated or scissoring	Safe position	If remains angulated or unstable, f/u 1 week All others, 3 weeks
	Volar Plate (sprain or fracture)		Immobilize PIP 30 deg *flexion*	1 week
	Condylar fracture (unstable)		Safe Position	Next clinic
	Shaft (unstable)	Reduce in ED angulated or scissoring	Safe Position	1 week
D2-5 Metacarpal	Neck	D2-3 > 20 degrees D4-5 > 40 degrees or any impaired ROM	Safe Position	If remains angulated or unstable, f/u 1 week All others, 3 weeks
	Shaft or Base	Reduce in ED angulated or scissoring	Safe Position	If remains angulated or unstable, f/u 1 week All others, 3 weeks
D1 "thumb"	Distal & Proximal Phalynx	Reduce in ED angulated or scissoring	Thumb Spica	1 week
	Ulnar Collateral Ligament (UCL; sprain or fracture)		Thumb Spica	Next clinic if UCL instability Otherwise, 3 week
	Rolando or Benett		Thumb Spica	Next Clinic
Finger Dislocation		Reduce in ED	Safe position	1 week
Scaphoid			Thumb Spica	< 1 week if displaced/severe 2 weeks if suspected 4 weeks if non-displaced

FACIAL INJURIES AND SIGNIFICANT BURNS/WOUNDS

Consult PLASTICS for follow-up

Facial Fractures	Any significant facial fracture that may require surgical or closed reduction	Next clinic
	Minor non-displaced facial fractures (i.e. Malar fracture)	≤1 week
	Nasal fracture (reduced or un-reduced in ED)	≤1 week
Burns / Wounds	Any burn unless extremely mild (i.e. sunburn)	Next clinic
	Any major laceration with risk of infection (human / animal bite and / or contaminated wound)	Next clinic
	Any burn dressed with Silver dressing in ED	≤1 week
	Any significant wound sutured in ED	≤1 week