

Montreal Children's Hospital – McGill University Health Center

Emergency Department Fracture Guideline

Disclaimers

This document is designed to assist physicians working in our 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. All open fracture or those with neurovascular impairment require urgent management in consultation with the appropriate surgical specialty. This guideline pertains to closed fractures only.

Who to call for clinical advice

For Health Care Professionals requiring additional assistance or advice, please call the on-call orthopaedic or plastics service for immediate advice at 514-412-4400 ext 53333; they are available 24/7/365.

For doctors outside of the MCH who have diagnosed a fracture, refer patients:

DIRECTLY to the OUT-PATIENT Orthopedic or Plastic Surgery Clinic

- NON-DISPLACED AND IMMOBILIZED INJURIES (ex. temporary slab, wrist guard)
- Referral can be submitted (directly by patient) via the website: <https://www.thechildren.com/request-appointment>

To the EMERGENCY ROOM

- DISPLACED FRACTURES AND / OR UNABLE TO TEMPORARILY IMMOBILIZE
- Send patient *with a consult (legible name and license) and any imaging already done*
*** Please note we do not have a cast technician at night between 11pm-8am ***

Specifications on organizing follow-up

- If there is (potential) significant swelling, a 3-way slab should be utilized for immobilization
- For orthopaedic and plastics follow-up, please enter the following on the consult form:
Age, Sex, Side, Bone, Location, Fracture Type, Cast-Type (ex. 8-year-old girl, Right distal radius fracture, below elbow molded cast)
- If closed reduction done, please indicate (ex. Left D5 Boxer's Fracture, post-reduction, Ulnar gutter cast)
- If PRN f/u indicated, please indicate in chart and provide patient/family phone number to clinic (514-412-4040)
- FYI: Ortho has physiotherapist in their clinic, Plastics has access to occupational therapy during clinic

Immobilization Consideration

If immobilized with follow-up within 1 week, this guideline suggests SLABS over definitive immobilization

Materials

*** **NEW Standard of Care = Child proof casts** : 3M sleeve, Wet/Dry soft roll, and Fiberglass cast ***

*** **Water proof casts** : may be offered to patients whose follow up is at ≥ 3 weeks and is most appropriate for below large joint casts (examples: below elbow cast \pm fingers in safe).

Molded cast

- When molding is required, the ideal material is plaster of Paris.

Hand injuries

- SAFE position is defined as wrist extension at 20 degrees, metacarpophalangeal (MCP) joint at 70 degrees flexion and the inter-phalangeal (IP) joints in full extension.
- If follow-up within 1 week, then use gutter or slab. Otherwise use full cast to immobilize in safe position.
- Injuries requiring single digits to be immobilized may be done so with aluminium splints or "buddy taping".

Any questions

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

Acknowledgement and Approvals

- Dubrovsky, Bretholz, Benaroch, Saran, Cugno, Friedman, Kudirka, Frechette, and Eliane Cote (family partner)
- Special acknowledgements: Drs. Brody and Diksic for their contributions to previous edition, Dr. Diksic for editorial assistance on this version, and to all members of the ED's CASTED (casts and splints in the emergency department) LEAN QI project team.
- Approved by MCH Divisions of Emergency, Orthopedic, Plastic Surgery, and Trauma, July 1, 2018.

ED Fracture Guideline 2018

UPPER EXTREMITY

Consult ORTHOPAEDICS for follow-up

Abbreviations: Above elbow = A/E Below elbow = B/E
 Wrist Guard = W/G Salter-Harris Classification = SH
 Distal third of bone = DISTAL
 Age definitions: YOUNG = ♀ < 10 or ♂ < 12 OLDER = ♀ ≥ 10 or ♂ ≥ 12

Fracture	Details	Indication to reduce	Immobilization type	Follow up guidelines
Radius &/or Ulna	Buckle, SH-1 undisplaced		W/G	No sports 4-6 weeks If YOUNG, PRN f/u if any concerns >6 weeks If OLDER, 4 weeks
	SH-2 undisplaced		YOUNG, W/G OLDER, B/E	→ 4 weeks → 1 week
	SH-1,2 displaced	Reduce in ED	B/E Molded (consider A/E molded <5yrs)	1 week
	SH- 3,4,5	CALL ORTHOPEDICS		1 week
	DISTAL undisplaced or DISTAL "minimally" displaced (greenstick or transverse) - "minimally" defined as: YOUNG < 10 degrees OLDER < 5 degrees		W/G (if concern, treat as DISTAL displaced)	1 week
	DISTAL displaced (greenstick or transverse) <i>NB: if more than "minimally" displaced & not needing reduction, ensure well molded cast with plaster of Paris</i>	Reduce in ED if: Age <6 ≥ 20 degrees YOUNG ≥ 15 degrees OLDER ≥ 5 degrees	B/E Molded (consider A/E molded <5yrs)	1 week
	Shaft(s) undisplaced		A/E	1 week
	Shaft(s) displaced	Reduce in ED	A/E	1 week
	Plastic deformity (clinically visible)	CALL ORTHOPEDICS		1 week
	Radial neck buckle		YOUNG, A/E OLDER, Sling	→3 weeks →1 week
	Head undisplaced		A/E	3 weeks
	Head displaced	CALL ORTHOPEDICS		1 week

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Age definitions: YOUNG = ♀ < 10 or ♂ < 12
 OLDER = ♀ ≥ 10 or ♂ ≥ 12

Fracture	Details	Indication to reduce	Immobilization type	Follow up guidelines
Elbow	Dislocation	Reduce in ED and note "stability" post-reduction on referral	A/E Slab	1 week
	Olecranon undisplaced		A/E Slab	1 week
	Olecranon displaced	CALL ORTHOPEDICS		Operative
	Lateral condyle	CALL ORTHOPEDICS		Usually operative
	Medial epicondyle displaced	CALL ORTHOPEDICS		1 week
	Medial epicondyle undisplaced	CALL ORTHOPEDICS	A/E	3 weeks
	Effusion (fat pad sign)		YOUNG, A/E OLDER, Sling	→3 weeks →1 week
Humerus	Supracondylar Type I		A/E	3 weeks
	Supracondylar Type II or III (displaced)	CALL ORTHOPEDICS		Operative
	Neck undisplaced		Stevenson	YOUNG, f/u PRN >6 weeks -Stevenson x 4 weeks -No sports for 8 weeks OLDER, 4 weeks
	Neck displaced	CALL ORTHOPEDICS (ONLY IF "OLDER")	Stevenson	YOUNG, 4 weeks OLDER, 1 week
	Shaft		Stevenson	YOUNG, 4 weeks OLDER, 1 week
Shoulder	Dislocation	Reduce in ED	Stevenson	2 weeks

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 Distal third of bone = **DISTAL**

Age definitions: **YOUNG** = ♀ < 10 or ♂ < 12 **OLDER** = ♀ ≥ 10 or ♂ ≥ 12

Clavicle	Undisplaced: ALL ages			
	Displaced: Girls<12 and Boys<14		Sling PRN 1 st week	No <i>contact</i> sports x 3 months PRN f/u if still in pain>2 month
	Displaced, comminuted, or tenting: Girls≥12 and Boys≥14		Stevenson	IF interested in operative option, f/u < 1 week IF <i>not</i> interested in operation, f/u 4 weeks

LOWER EXTREMITY

Consult **ORTHOPAEDICS** for follow-up

Abbreviations:

Above knee = A/K
 Non-walking cast = NW
 Distal third of bone = DISTAL

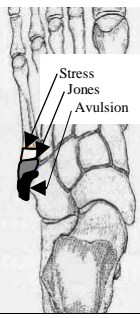
Below knee = B/K
 Walking cast = WC
 Proximal third = PROXIMAL

Fracture	Details	Indication to reduce	Immobilization type	Follow up guidelines
Pelvis	Hip Dislocation / Fractures	CALL ORTHOPEDICS		
	Avulsion fractures		Crutches	Ischial tuberosity > 5 mm → 1 week All others (displaced or not) → 4 weeks
Femur	All types of fractures	CALL ORTHOPEDICS		Often operative
Knee	Patellar dislocation	Reduce in ED	Zimmer	2-3 weeks
	Patellar fracture/dislocation with osteochondral fragment	CALL ORTHOPEDICS		
	Effusion without fracture		Ace bandage	Physio PRN PRN f/u if pain > 2 weeks
Tibia (Proximal or Shaft)	Tibial tuberosity avulsion with loss of active extension	CALL ORTHOPEDICS		Operative
	Tibial spine	CALL ORTHOPEDICS		1 week
	Proximal Buckle		AK NW	4 weeks
	Shaft undisplaced		A/K NW (in PLASTER)	1 week
	Shaft displaced	CALL ORTHOPEDICS		1 week
	Toddler's fracture (i.e. no cortical disruption)		B/K WC (A/K if PROXIMAL)	4 weeks
	Suspected toddler's fracture		Option 1: Watchful waiting Option 2: B/K WC if significant pain	→ PRN f/u >6 weeks → 4 weeks
Fibula (Proximal or Shaft)	Shaft (displaced or undisplaced)		Crutches ± Slab PRN	1 week
	Maisonneuve	CALL ORTHOPEDICS		

LOWER EXTREMITY

Consult **ORTHOPAEDICS** for follow-up

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

Fracture	Details	Indication to reduce	Immobilization type	Follow up guidelines
Ankle	Sprain		Ace bandage	"Ankle sprain kit"
	DISTAL fibula undisplaced (Buckle, SH-1,2, avulsion)	Option 1: ankle sprain Option 2: B/K WC if significant pain		→ No sports x 4 weeks → 4 weeks
	DISTAL tibia undisplaced (Buckle, SH-1,2, avulsion)		B/K Slab	1 week
	DISTAL tibia or fibula displaced SH-1,2, and any SH-3,4,5	CALL ORTHOPEDICS		1 week
	Displaced/Unstable Tib-Fib	CALL ORTHOPEDICS		1 week
	Tillaux or Triplane fracture	CALL ORTHOPEDICS		1 week
	Spiral fibula (Weber a,b,c)	CALL ORTHOPEDICS		1 week
Metatarsal	D1 or D2-5 Undisplaced		Hard shoe	No f/u
	Multiple fractures		Consider B/K WC	4 weeks (if casted)
	Intra-articular or displaced	CALL ORTHOPEDICS		1 week
	Stress fracture 5 th metatarsal "dancer's fracture"		B/K NW	4 weeks
	Jones fracture (5 th metatarsal)		B/K NW	6 weeks
	Base 5 th Avulsion		Hard shoe	4 weeks
Phalynxes	D1 (proximal phalynx)	Reduce if clinical deformity	B/K WC	4 weeks
	D1 (distal phalynx, any) D2-5 (any)	Reduce if clinical deformity	Hard shoe ± buddy tape	No f/u
	Multiple fractures		Hard shoe Consider B/K WC	4 weeks (if casted)

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
	Preformed splint	= Splint	Follow-up	= f/u
	3-way slab	= Slab	Safe position	= safe
	Below elbow	= B/E		

Fracture	Details	Indication to reduce	Immobilization type	Follow up guidelines
Finger Dislocation		Reduce in ED	Safe Slab	1 week
D2-5 Distal Phalynx	Tuft alone		Buddy tape PRN	No f/u
	Tuft with nailbed injury	Repair as indicated	Splint DIP	1 week
	Mallet		24/7 splint in hyperextension	1 week
	Mallet with nailbed injury	CALL PLASTICS (r/o Seymour fracture)	24/7 splint in hyperextension	1 week
	Shaft (unstable)	Reduce in ED angulated or scissoring	Splint DIP	If reduced, 1 week All others, 3 weeks
D2-5 Middle or Proximal Phalynx	Buckle, SH-1,2	Reduce in ED angulated or scissoring	If reduced, Slab in safe All others, buddy tape	→ 1 week → PRN > 3 weeks
	Volar Plate (sprain or fracture)		Buddy tape	Next clinic (<72 hours)
	Condylar fracture (unstable)	Consider reduction in ED (unstable)	Slab in safe	Next clinic (<72 hours)
	Shaft (unstable)	Reduce in ED if angulated or scissoring	Slab in safe	1 week

HAND & WRIST

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Abbreviations:	Digit	= D	Metacarpal	= MC
	Distal inter-phalyngeal	= DIP	Metacarpal-phalyngeal	= MCP
	Proximal inter-phalyngeal	= PIP	Range of motion	= ROM
	Preformed splint	= Splint	Follow-up	= f/u
	3-way slab	= Slab	Safe position	= safe
	Below elbow	= B/E		

Fracture	Details	Indication to reduce	Immobilization type	Follow up guidelines
D2-5 Metacarpal	Neck (minimal or no angulation) D2-3 < 20 degrees D4-5 < 40 degrees		B/E in safe	3 weeks
	Neck (angulated) D2-3 ≥ 20 degrees D4-5 ≥ 40 degrees or Scissoring	Reduce in ED	Slab in safe	1 week
	Shaft or Base	Reduce in ED if angulated or scissoring	If reduced, slab in safe All others, B/E in safe	→ 1 week → 3 weeks
D1 "thumb"	Phalynx (Distal or Proximal)	Reduce in ED if angulated or scissoring	If reduced, slab All others, thumb spica	→ 1 week → 3 weeks
	Ulnar Collateral Ligament (UCL; sprain or fracture)		If UCL instability, slab All others, thumb spica	→ Next clinic → 3 week
	Metacarpal	Reduce in ED if angulated or scissoring	If reduced, slab All others, thumb spica	→ 1 week → 3 weeks
	Rolando or Bennett		Slab	Next clinic (<72 hours)
Scaphoid	Fracture seen on X-ray	CALL PLASTICS (consider CT)	Slab	< 1 week
	Suspected		Slab	2 weeks