

# Childhood fracture management

## Project overview



# Victorian Paediatric Orthopaedic Network



The Royal **Children's**  
Hospital Melbourne





# What this presentation covers

- § Project background
- § Guidelines
- § Education module
- § Implementing the guidelines

# Background

- § Misdiagnosis is a common occurrence
  - Residents unable to determine if paediatric fracture present or not in 20% of cases (Ryan et al 2004)
  - Management incorrect in > 50% of cases (Ryan et al 2004)
- § Audit of plaster casts in a Victorian tertiary hospital
  - only 35% were deemed adequate

# Background

## § Aim of project

- Improve and standardise quality of paediatric fracture care

## § Developed by

- ED physicians
- Paediatric orthopaedic surgeons

# Childhood fracture management

RCH Clinical Practice Guidelines website  
[www.rch.org.au/clinicalguide/fractures](http://www.rch.org.au/clinicalguide/fractures)

§ Guidelines

§ Education module

§ Fact sheets

§ Casting videos

## Paediatric Fractures Guidelines

for Emergency Department

for Fracture Clinics

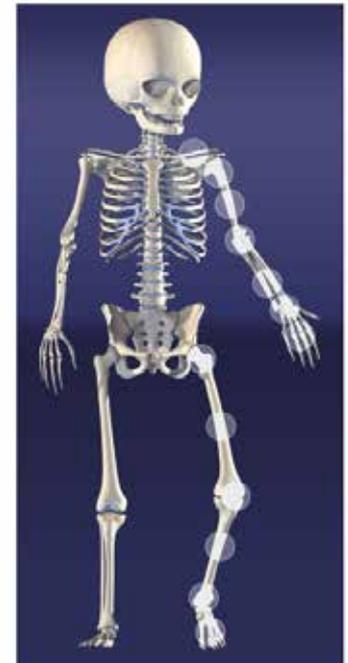
Education

Family resources

The following Guidelines are for use in the Emergency Department.

- [Clavicle](#)
- [Proximal humerus](#)
- [Humeral shaft \(diaphysis\)](#)
- [Elbow](#)
  - [Supracondylar](#)
  - [Lateral condyle](#)
  - [Medial epicondyle](#)
  - [Monteggia fracture-dislocation](#)
  - [Olecranon](#)
  - [Radial neck](#)
- [Forearm](#)
  - [Radius and ulna shaft \(diaphysis\)](#)
  - [Monteggia fracture-dislocation](#)
  - [Galeazzi fracture-dislocation](#)
- [Wrist - distal radius and ulna](#)
  - [Metaphyseal](#)
  - [Physeal \(growth plate\)](#)
- [Hand\\*](#)
- [Hip and proximal femur](#)
  - [SUFE\\*](#)
  - [Hip dislocation\\*](#)
  - [Neck of femur\\*](#)
- [Femoral shaft \(diaphysis\)\\*](#)
- [Tibial shaft \(diaphysis\)\\*](#)
- [Ankle - distal tibia and fibula physeal\\*](#)
- [Foot\\*](#)

\* Guideline not yet published.



# Clinical guidelines for ED

- § Easy to read format
- § X-rays to order
- § When to refer to ortho
- § Management in ED
- § Follow-up
- § Summary

[Radius/ulna shaft guidelines link](#)

## Radial/ulna shaft diaphysis fractures - Emergency Department

See also: [Radius/ulna shaft \(diaphysis\) fractures - Fracture clinic](#)

[Fracture Guideline Index](#)

1. [Summary](#)
2. [How are they classified?](#)
3. [How common are they and how do they occur?](#)
4. [What do they look like - clinically?](#)
5. [What radiological investigations should be ordered?](#)
6. [What do they look like on x-ray?](#)
7. [When is reduction \(non-operative and operative\) required?](#)
8. [Do I need to refer to orthopaedics now?](#)
9. [What is the usual ED management for this fracture?](#)
10. [What follow-up is required?](#)
11. [What advice should I give to parents?](#)
12. [What are the potential complications associated with this injury?](#)

### 1. Summary

Fracture Type	ED Management	Follow-up
 Greenstick	Refer to <a href="#">acceptable angulations</a> Closed reduction with immobilisation in above-elbow cast for 6 weeks. Three point moulding is required	Fracture clinic within 7 days with x-ray.
 Plastic deformation	Plastic deformation is often unrecognised. Radiographic findings may be subtle. It is most commonly seen in the ulna. Refer to orthopaedics for advice. Usually requires general anaesthetic manipulation plaster (GAMP) due to prolonged force to correct deformity	Fracture clinic within 7 days with x-ray.

# Education module

- § Bone anatomy
- § Fracture patterns
- § Principles of evaluation and management
- § Animations
- § Quiz



[Paediatric education module link](#)

# Family resources

## § Fact sheets

- Clavicle
- Buckle injury
- Supracondylar
- Wrist
- Plaster care

[www.rch.org.au/clinicalguide/fractures/#family](http://www.rch.org.au/clinicalguide/fractures/#family)

## Buckle injuries of the wrist



### ORTHOPAEDIC FACT SHEET

A buckle injury of the wrist is a small area of compressed bone injury. The wrist may be tender, slightly swollen, and painful to move. The injury may be difficult to see on x-ray. There is no deformity.

This injury is treated by wearing a removable back slab or ready-made splint (e.g. Pansol<sup>TM</sup>) which can be removed for bathing or showering. An arm sling is optional for comfort.

Pain is usually not severe and should be managed with a simple pain medication such as paracetamol (e.g. Panadol<sup>TM</sup>). Give as needed following the directions on the packet, or as directed by your child's doctor.

Since these injuries are stable and heal quickly without problems, x-ray or follow-up appointment with the GP, fracture clinic or physiotherapy is usually not required.

Remove your child's back slab or splint three weeks from the injury. Wrist movement may be a little stiff and sore at first. Rough and tumble play, and contact sports should be avoided for 6 weeks.

Contact the doctor or the hospital your child attended if after three weeks from the injury:

- Your child's wrist remains very painful or swollen
- Your child will not use their wrist, hand or fingers within 2-3 days of the back slab or splint being removed.

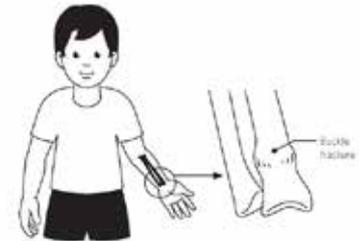


Figure 1. Buckle injury of the wrist.

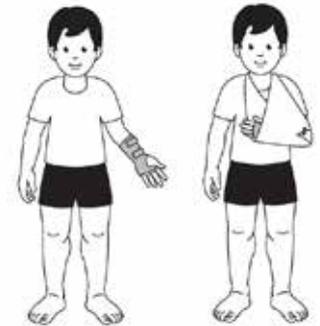


Figure 2. Buckle injuries are treated with a splint or back slab - an arm sling is optional.

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# Steps to implementing guidelines

1. Becoming motivated to change
  - Baseline audit
  - Raise awareness
2. Changing what needs to be changed
  - Identify barriers and tailor approach
  - Monitor progress
3. Making the change permanent
  - Sustain progress

Source: Stroke and TIA care bundle. NICS 2009.

# Barriers to uptake of guidelines

## Knowledge

“I didn’t know there were guidelines”

“I haven’t read the guidelines”

## Beliefs

“It’s all good in theory, but practice is different”

“I know what’s best for my patients”

## Behaviour

“It takes time – time which I don’t have”

# Overcoming barriers

Barrier	Intervention
Lack of knowledge	<ul style="list-style-type: none"><li>• Raise awareness of guidelines (e.g. Poster)</li><li>• Interactive educational meetings to highlight key messages</li></ul>
Lack of motivation	<ul style="list-style-type: none"><li>• Obtain patient feedback</li><li>• Seek support from local opinion leaders</li><li>• Include in resident/registrar performance review and orientation</li></ul>

# Overcoming barriers

Barrier	Intervention
Beliefs	<ul style="list-style-type: none"><li>• Seek peer influence &amp; support from opinion leaders</li><li>• Audit and feedback</li></ul>
Skills	<ul style="list-style-type: none"><li>• Run interactive education meetings</li><li>• Incorporate into educational program</li></ul>

# Further information

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