

# ORTHOPAEDICS



FOR PRIMARY  
HEALTH CARE



**LION**  
LEARNING INNOVATION VIA  
ORTHOPAEDIC NETWORKS

EDITOR: **MICHAEL HELD**

UNIVERSITY OF CAPE TOWN'S **ORTHOPAEDIC DEPARTMENT**

# Approach to an injured child

by Marc Nortje & Ashley Arakkal

## Learning objectives

1. Understand how to approach an injured child to identify injuries.
2. Recognise, assess and manage life threatening injuries.

## Initial assessment

### Examination (ABCDEs):

#### 1. **Airway and immobilise cervical spine:**

Make sure airway is open. The easiest way is to see if the patient can talk. Deal with any airway problems immediately, use suction if needed. Employ jaw thrust and chin lift, oropharyngeal airway, intubate if required.

2. **Breathing:** Observe respiratory rate and oxygen saturation. Expose and inspect chest for external signs of trauma, asymmetrical chest movements. Palpate chest for crepitus or surgical emphysema. Percuss and auscultate for air entry bilaterally and added sounds. Administer face mask oxygen, intubate and ventilate, perform needle thoracotomy, intercostal drain as needed.

3. **Circulation:** Assess pulse rate, blood pressure, capillary refill and the warmth of peripheries. Look for signs of bleeding, especially chest, abdomen, retroperitoneum, pelvis and long bones. Control any major external bleeding with direct pressure. Manage shock, insert two large bore (at least 16 gauge) intravenous cannulas. If this cannot be rapidly achieved, obtain intraosseous access. (anterior medial tibia). Start IV fluid

resuscitation if in shock, transfuse blood if needed. Consult a trauma surgeon if surgical intervention is required for shock.

4. **Disability:** Assess GCS (Glasgow Coma Scale) pupil size and responsiveness. Assess gross motor and sensory function in all four limbs. If you suspect a spinal injury, a full neurological assessment is vital at the earliest opportunity. Check for priapism, loss of anal sphincter tone and the bulbocavernosus reflex. Check blood glucose.

5. **Expose the patient:** Log-roll the patient. Examine the back of the head, back, buttocks and axilla. Then cover and keep the patient warm.

6. **Secondary survey:** A secondary survey is carried out after the primary survey and immediate management of potentially life-threatening injuries to identify all other injuries. Perform a systematic head-to-toe examination, including head, face, neck, chest, abdomen, pelvis and extremities. Look for deformities

of limbs that may indicate fractures, examine for any open wounds around the fracture. Examine the neurovascular status of the injured limb and exclude compartment syndrome.

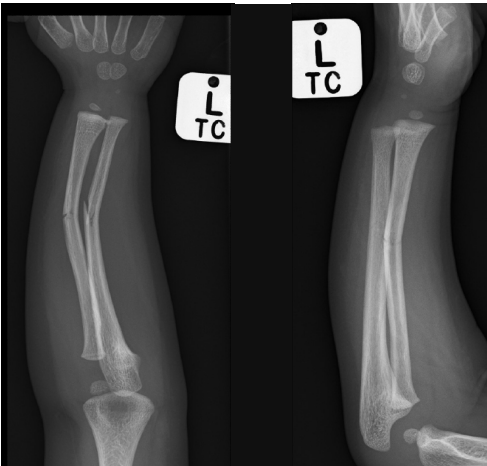
### History (AMPLE):

1. Allergies
2. Current Medications
3. Past medical history
4. Last meal
5. Events leading to injury

### Special investigations

If there is an isolated injury of the arm with suspected fracture, an X-ray of the affected limb, including the joint above and below the injury is most appropriate. Depending on other injuries, further X-rays or CT scans may be needed.

### Example



(A: AP view & B: lateral view)

Radius and ulnar greenstick fracture

### Management

- **Non-surgical:** Appropriate management of the fracture would be a reduction and the application of plaster of Paris as a splint.
- **Pharmacological:** Adequate analgesia is important.
- **Surgical:** Depending on the specific

Fracture, surgery may be indicated.



Post-reduction X-rays

**Editor:** Michael Held

**Conceptualisation:** Maritz Laubscher & Robert Dunn

**Cover design:** Carlene Venter  
(Creative Waves Brand Design)

**Developmental editing and design:**  
Vela Njisanane and Phinda Njisanane

## ABOUT THE BOOK

Informed by experts: Most patients with orthopaedic pathology in low to middle-income countries are treated by non-specialists. This book was based on a modified Delphi consensus study\* with experts from Africa, Europe, and North America to provide guidance to these health care workers. Knowledge topics, skills, and cases concerning orthopaedic trauma and infection were prioritised. Acute primary care for fractures and dislocations ranked high.

Furthermore, the diagnosis and the treatment of conditions not requiring specialist referral were prioritised.

\* Held et al. Topics, Skills, and Cases for an Undergraduate Musculoskeletal Curriculum in Southern Africa: A Consensus from Local and International Experts. JBJS. 2020 Feb 5;102(3):e10.

## THE LION

The Learning Innovation via Orthopaedic Network (LION) aims to improve learning and teaching in orthopaedics in Southern Africa and around the world. These authors have contributed the individual chapters and are mostly orthopaedic surgeons and trainees in Southern Africa who have experience with local orthopaedic pathology and treatment modalities but also in medical education of undergraduate students and primary care physicians. To centre this book around our students, iterative rounds of revising and updating the individual chapters are ongoing, to eliminate expert blind spots and create transformation of knowledge.

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The information in this book is meant to supplement, not replace, Orthopaedic primary care training. The authors, editor and publisher advise readers to take full responsibility for their safety and know their limits. Before practicing the skills described in this book, be sure that your equipment is well maintained, and do not take risks beyond your level of experience, aptitude, training, and comfort level.

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