

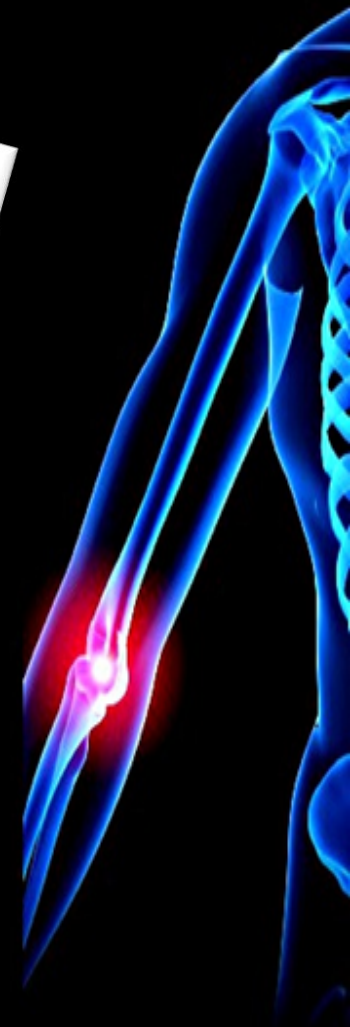


Assessment of value of imaging techniques in diagnosing elbow joint injuries in children

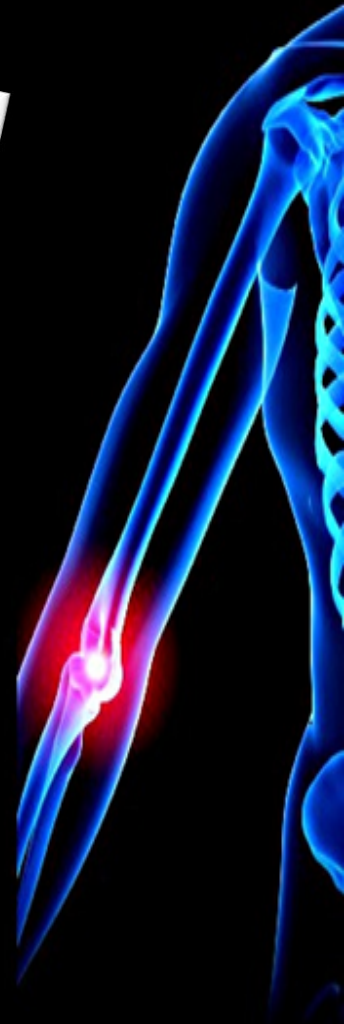
KATARZYNA FRYDRYCH

**Head of Pediatric Surgery
and Oncology Clinic :
prof. E. Andrzejewska, MD, PhD
Tutor: J. Jabłoński, MD**

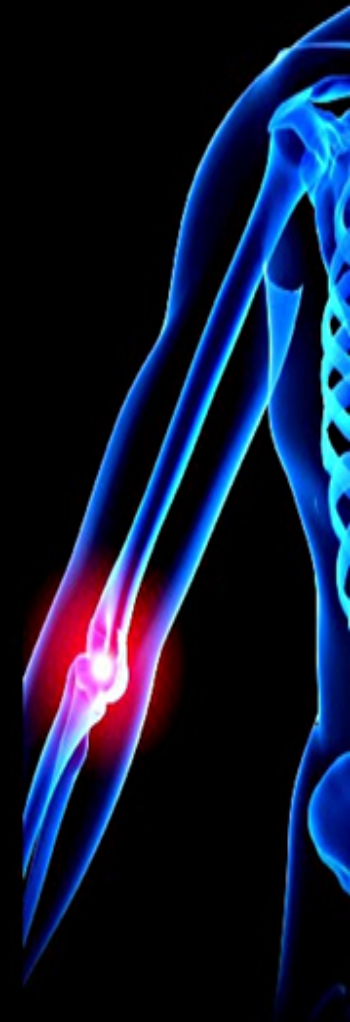
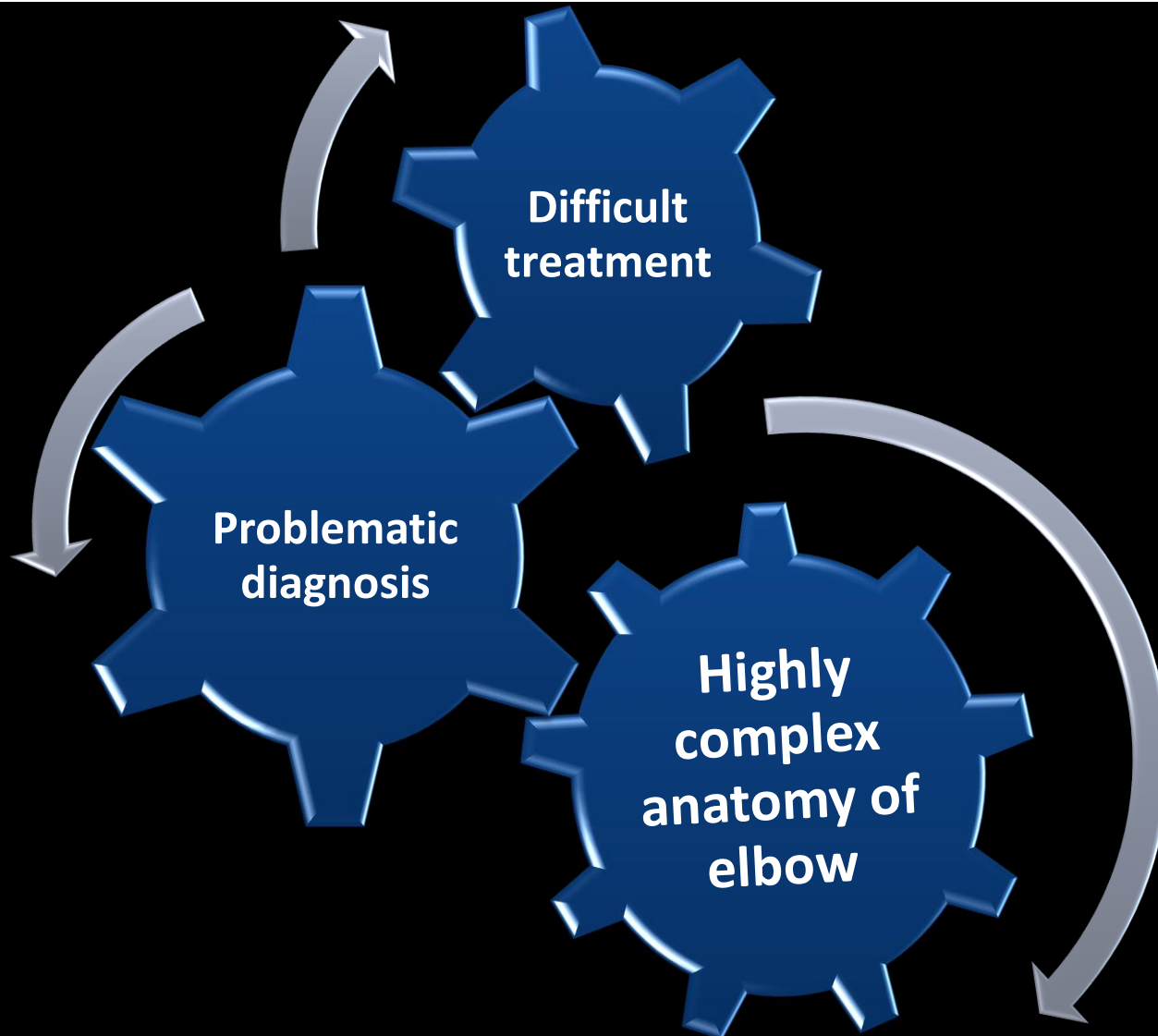
Introduction



Introduction



Introduction

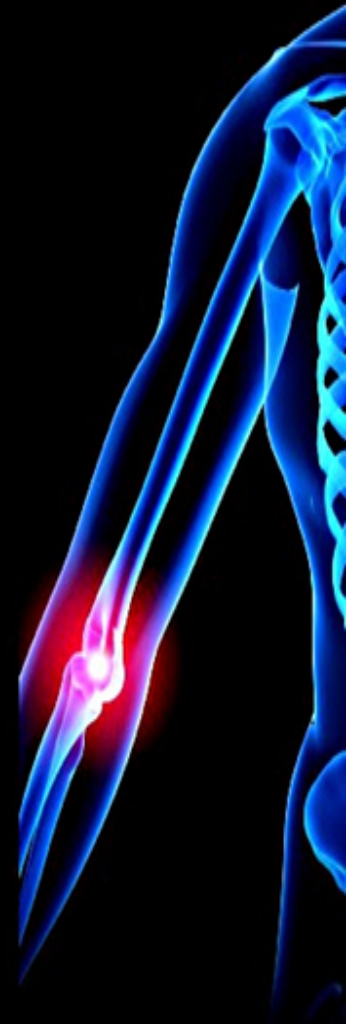


Introduction

Diagnosis

X-ray

CT scan



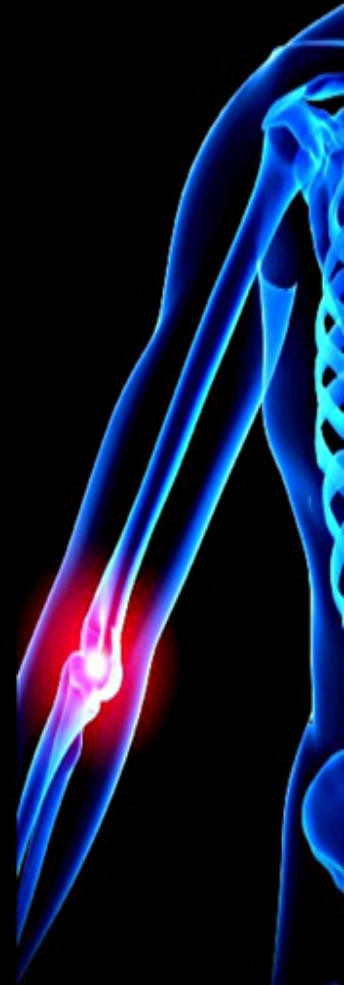
Aim of the study



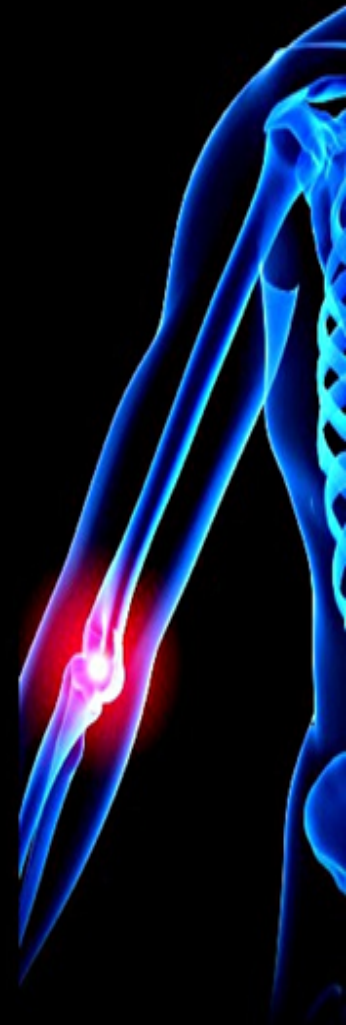
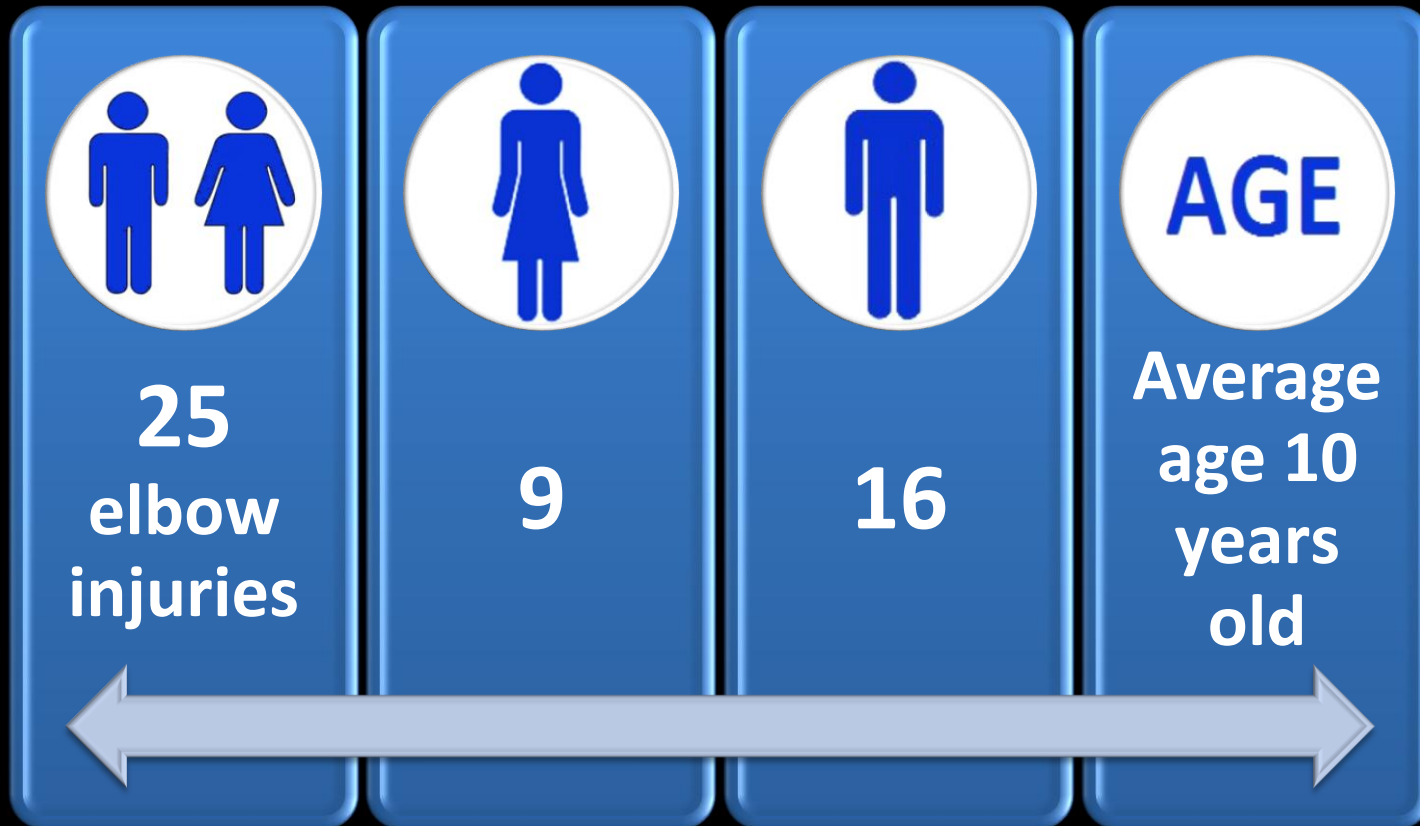
Assess the value of conventional radiograms and CT-scans for visualization of post-traumatic lesions of elbow joint in children



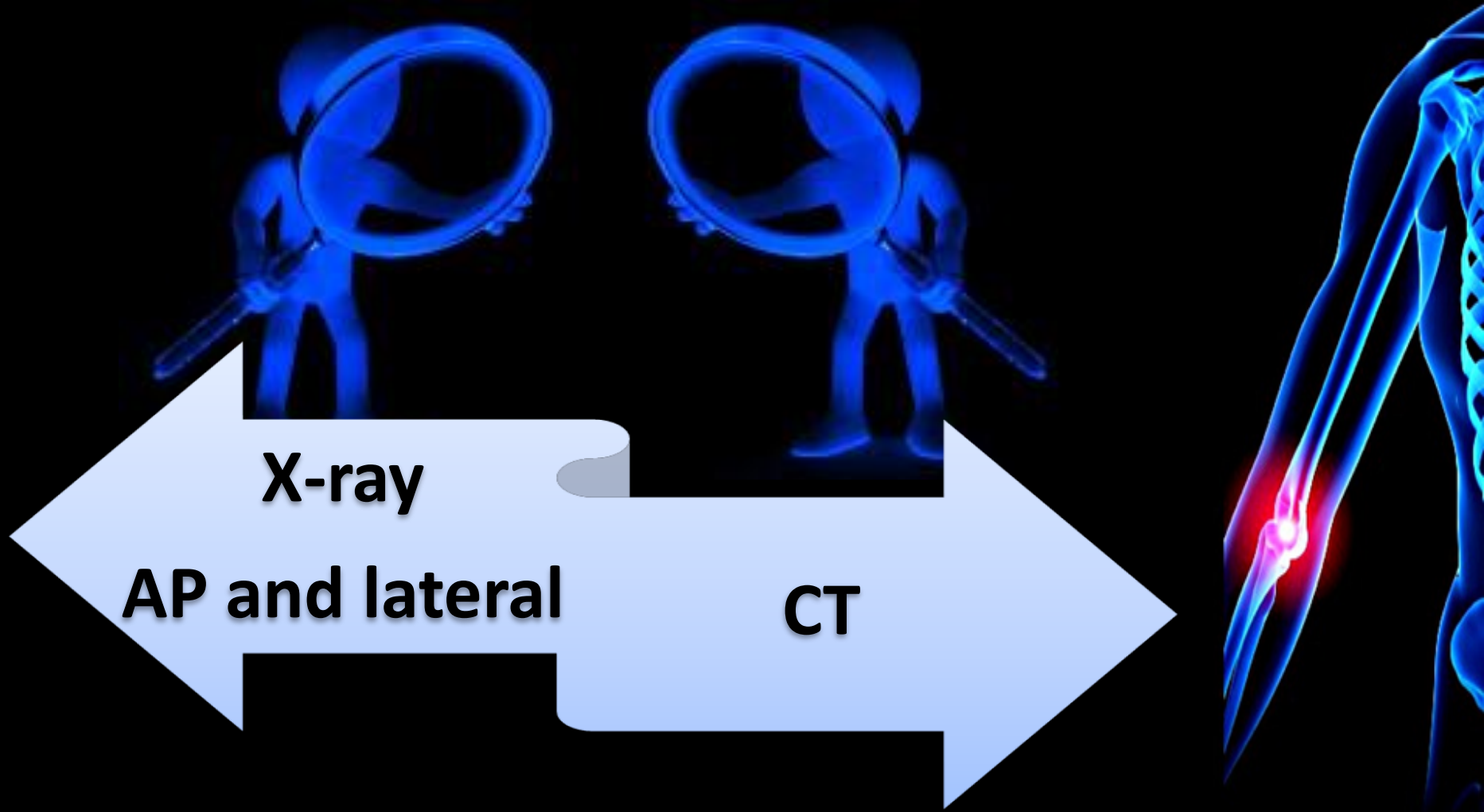
Sensitivity and sensibility of X-ray



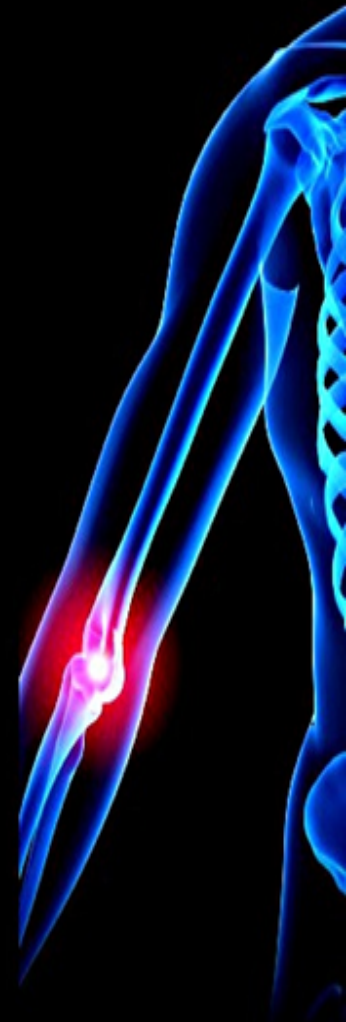
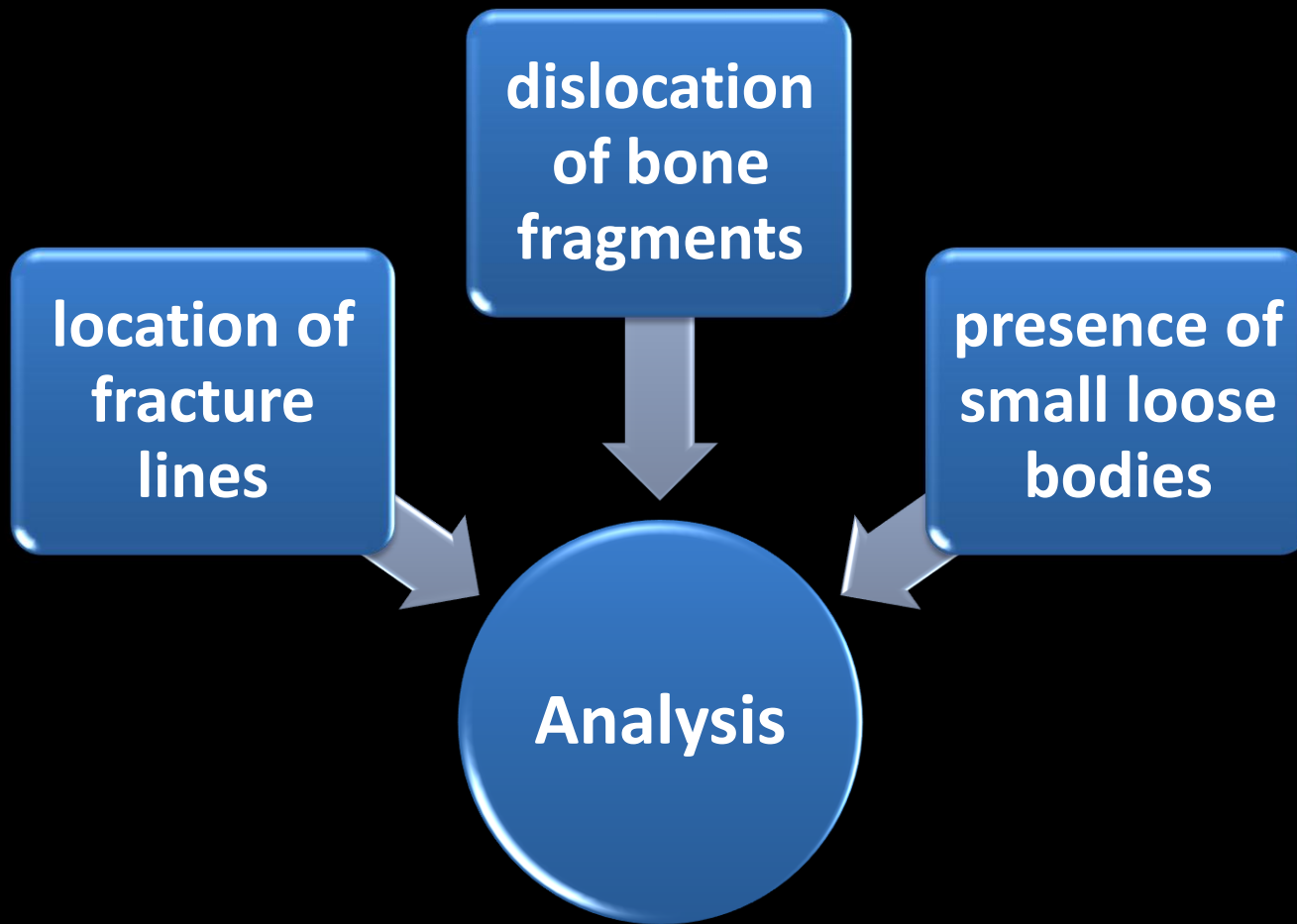
Material and Methods



Material and Methods



Material and Methods



Material and Methods

- Ability to identify positive results

Sensitivity

$$\frac{TP}{TP+FN}$$

- Ability to identify negative results

Specificity

$$\frac{TN}{FP+TN}$$

- Proportion of positive test results correctly diagnosed

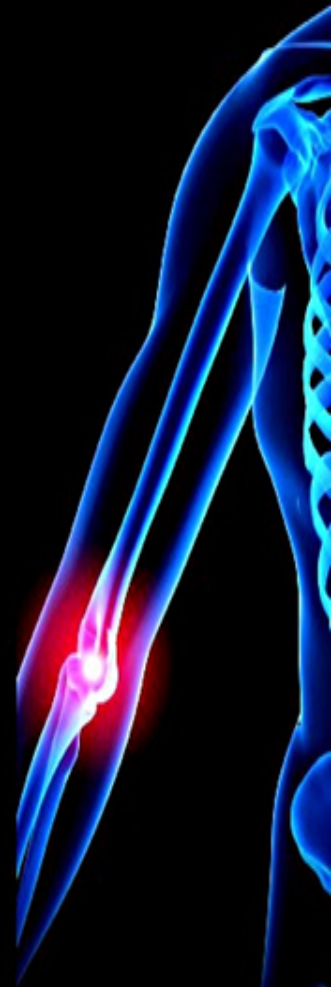
PPV

$$\frac{TP}{TP+FP}$$

- Proportion of negative test results correctly diagnosed

NPV

$$\frac{TN}{FN+TN}$$



Results

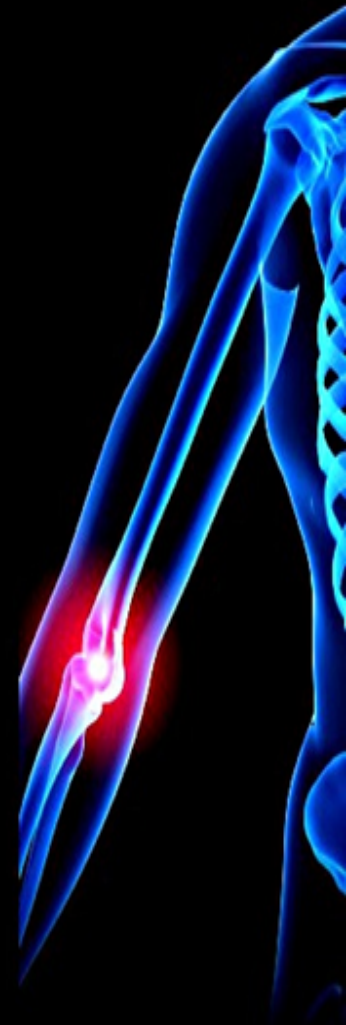
Location of fracture lines

X-ray

19

CT

24



Results

• Sensitivity

55%
(95%CI
41-68%)

• Specificity

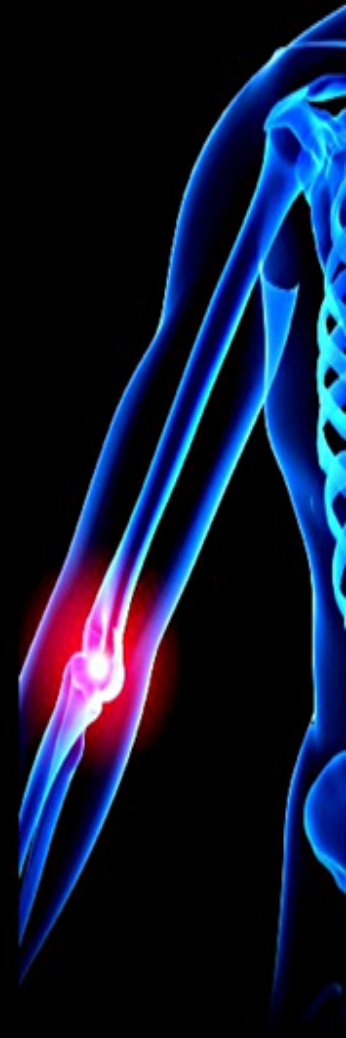
91%
(95% CI
82-96%)

• PPV

83%
(95%CI
67-93%)

• NPV

72%
(95%CI
61-81%)



Results

X-ray
10

CT
19

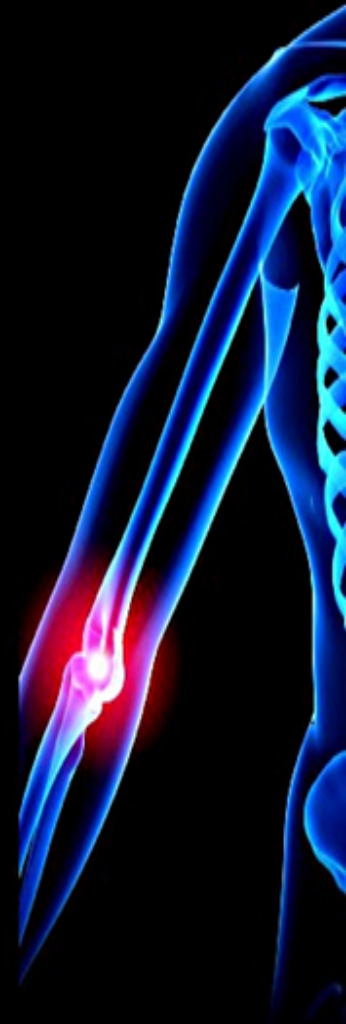
DISLOCATION

Sensitivity **56%**
(95%CI 31-78%)

Specificity **73%**
(95%CI 52-100%)

PPV **100%**
(95%CI 66-100%)

NPV **43%**
(95%CI 19-70%)



Results

X-ray
3

CT
15

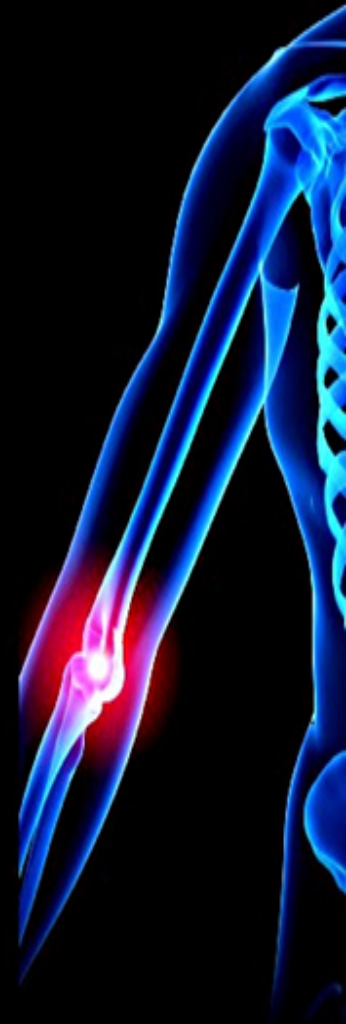
SMALL LOOSE BODIES

Sensitivity **7%**
(95%CI 0-34%)

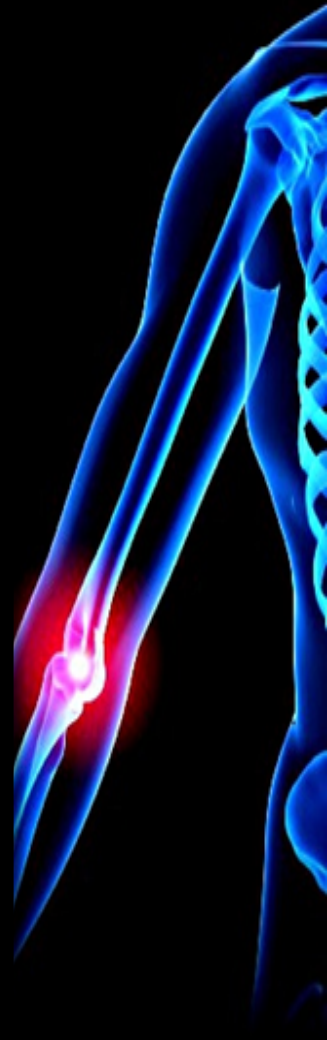
Specificity **80%**
(95%CI 44-96%)

PPV **33%**
(95%CI 2-87%)

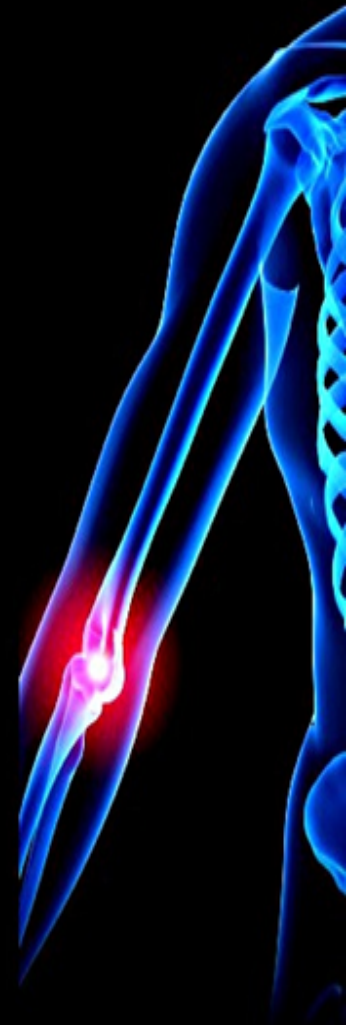
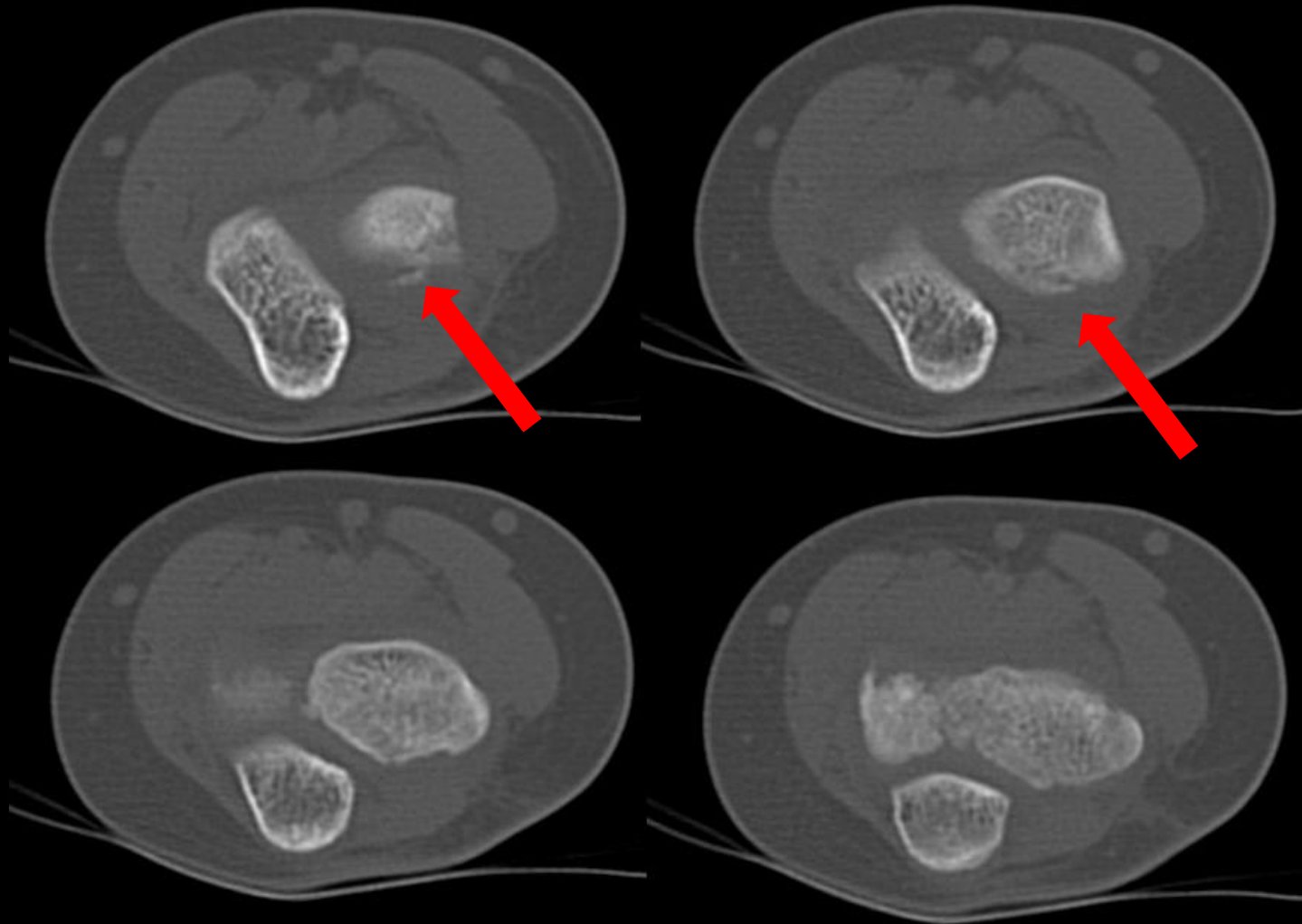
NPV **36%**
(95%CI 18-59%)



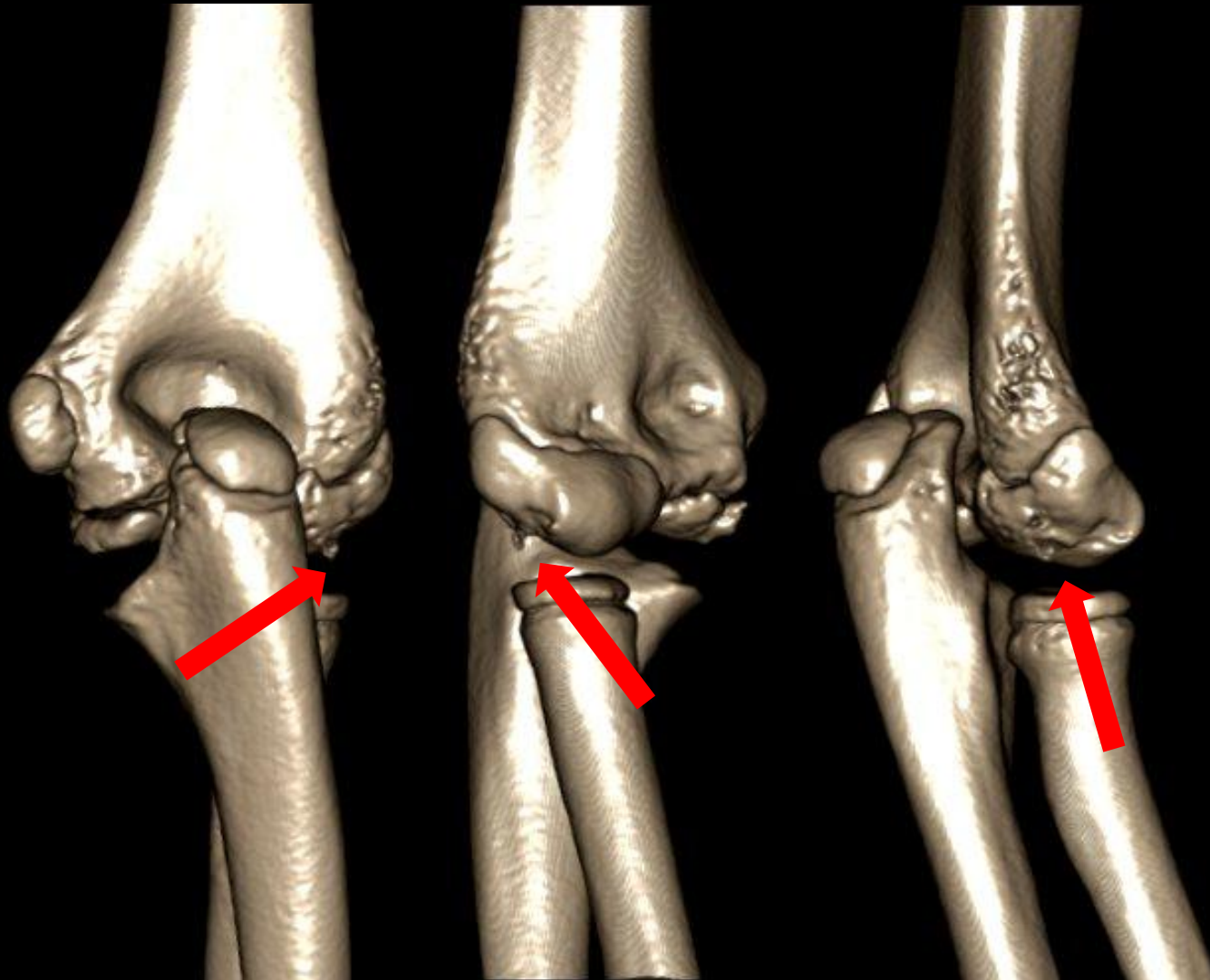
Girl, 10 year old



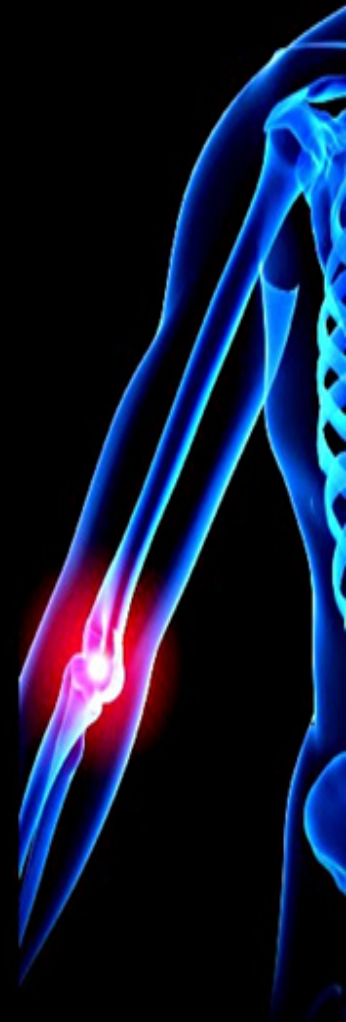
Girl, 10 year old



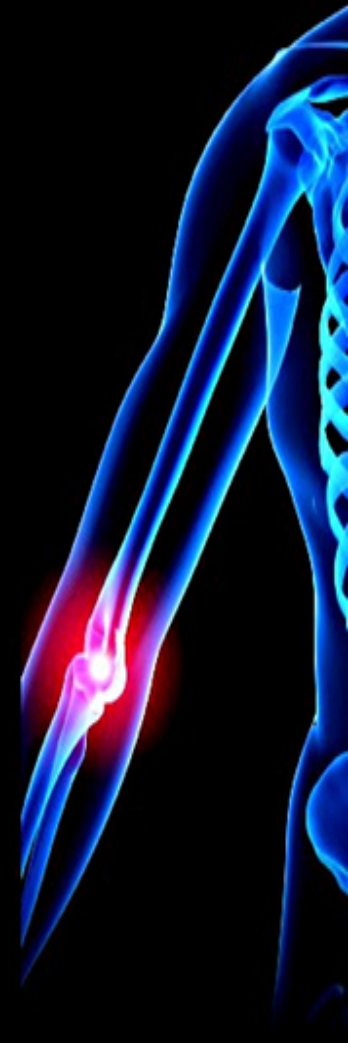
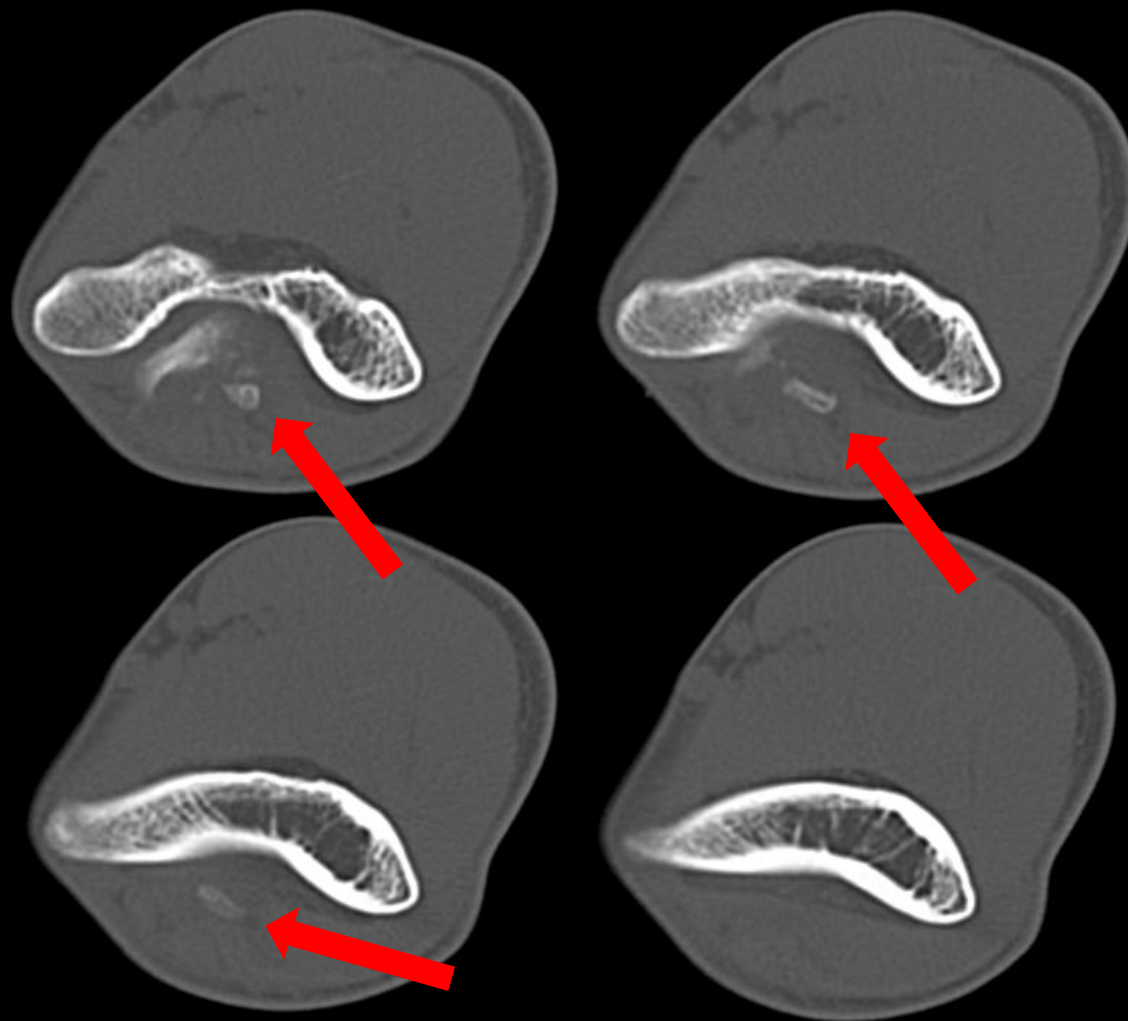
Girl, 10 year old



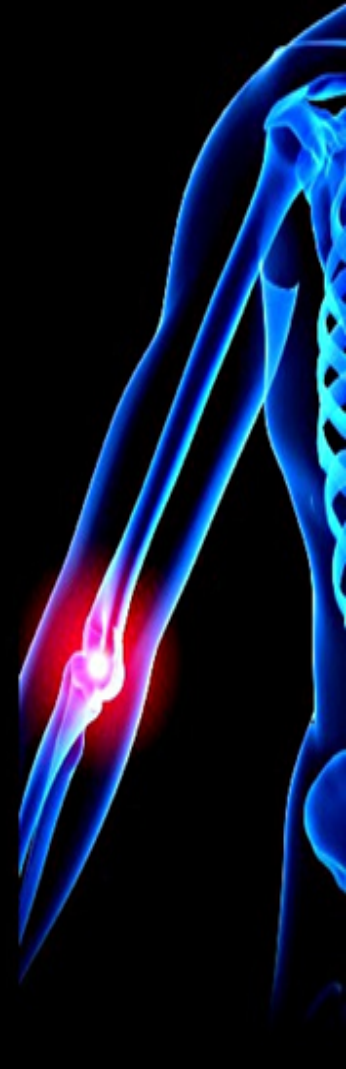
Boy, 17 year old



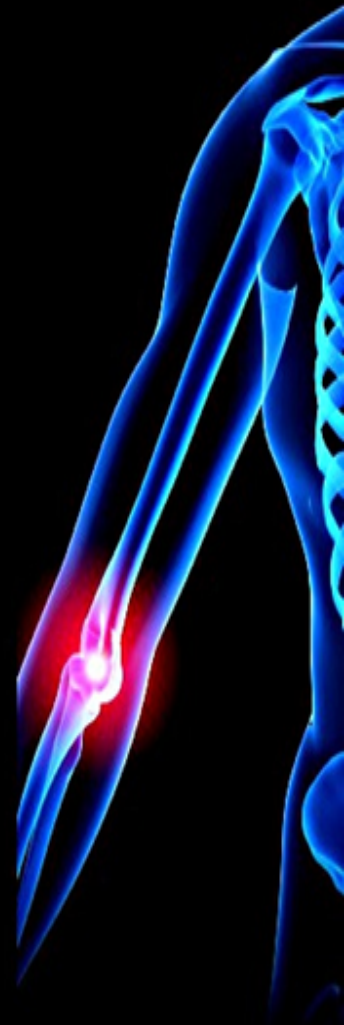
Boy, 17 year old



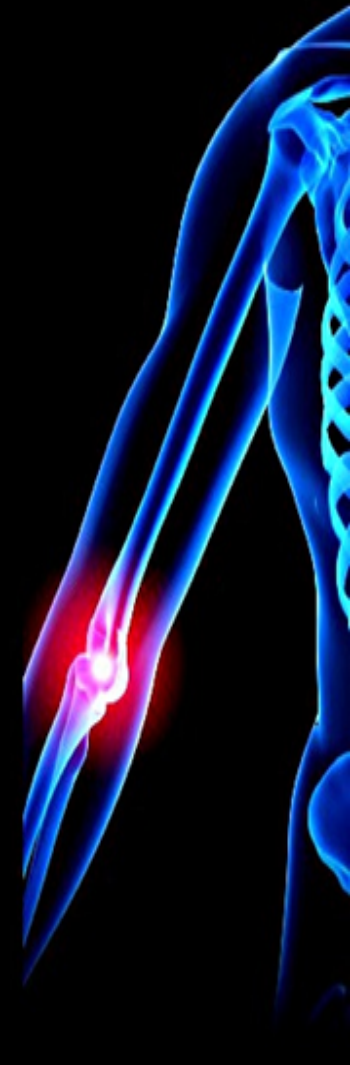
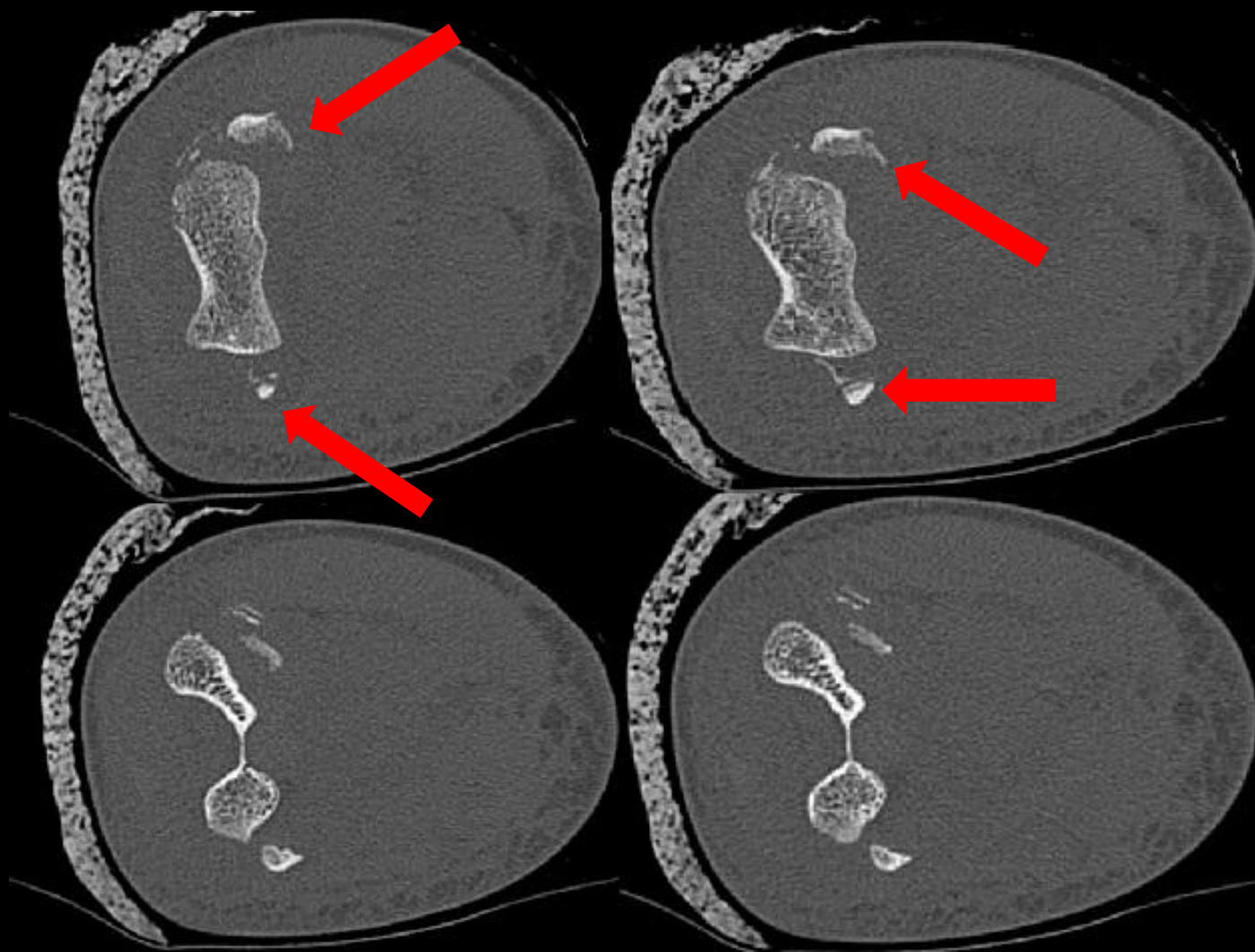
Boy, 17 year old



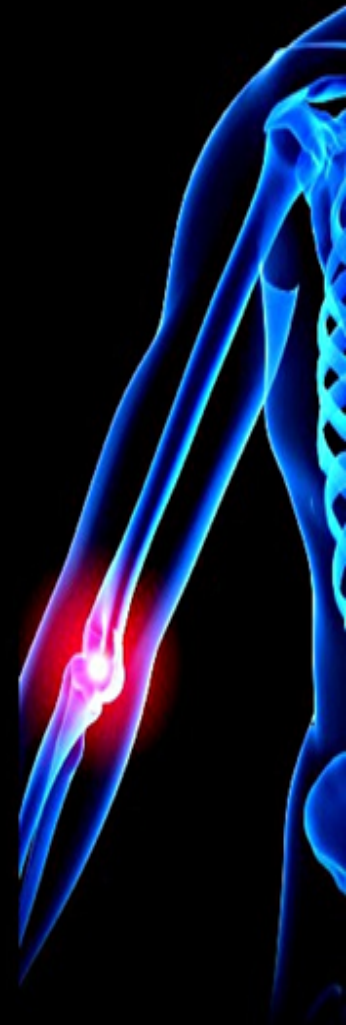
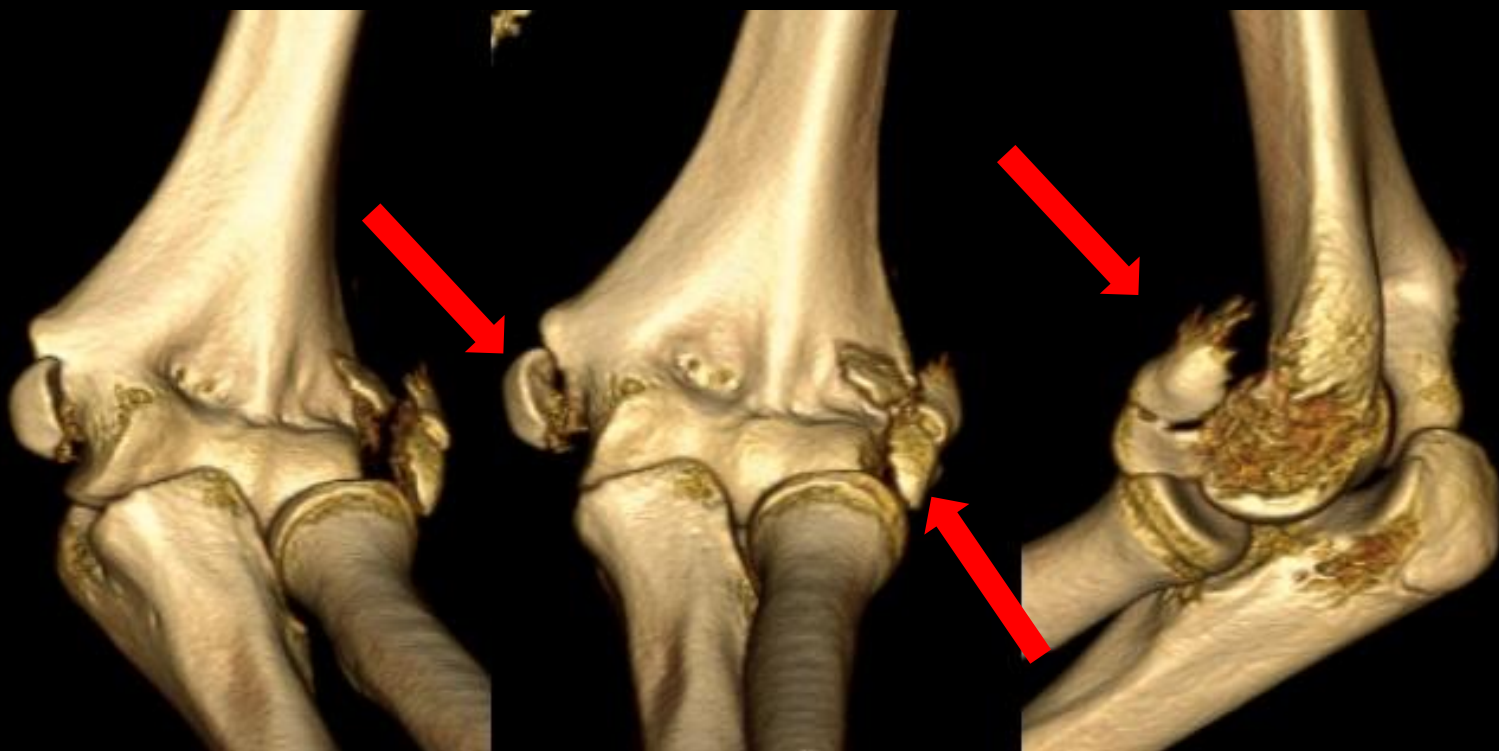
Boy, 14 year old



Boy, 14 year old

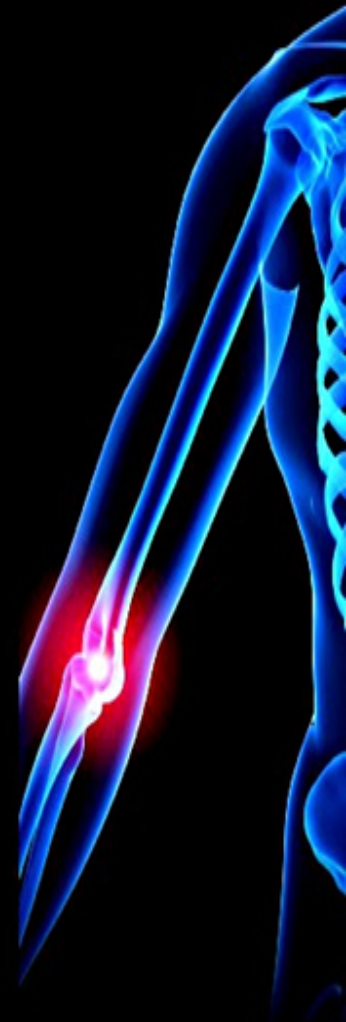


Boy, 14 year old



Applications

- CT is necessary in case of equivocal radiograph scans
- CT is **superior** to conventional radiography in the assessment of the position of fracture lines
- CT is **significantly more valuable** in diagnosing elbow traumas in children



**THANK YOU
FOR YOUR
ATTENTION**

