

# THE DISTRIBUTION OF OCCULT FRACTURES ON THE SKELETAL SURVEY

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## Introduction

- Indication: evaluation of non-accidental trauma in young (<2 yrs old) children.
- Radiographs of the entire skeleton.
- Radiation rate 0,15 - 0,45 mSv (4-5 chest x-rays).

Aim: Determine the distribution of occult fractures on the skeletal survey.

## Methods

**Design**  
Retrospective study 2008 - 2018.

**Participants**  
Children aged between 0 - 4 years old.

**Skeletal Surveys**

- Admitted children at the hospital (AMC)
- Reassessment images from the Netherlands (second opinion)
- All surveys reviewed by forensic paediatric radiologist

**Excluded**  
Images of deceased children.

Occult fractures are **frequently** detected on the skeletal survey. Most prevailing are occult fractures of the **ribs** and of the **tibia & fibula**.



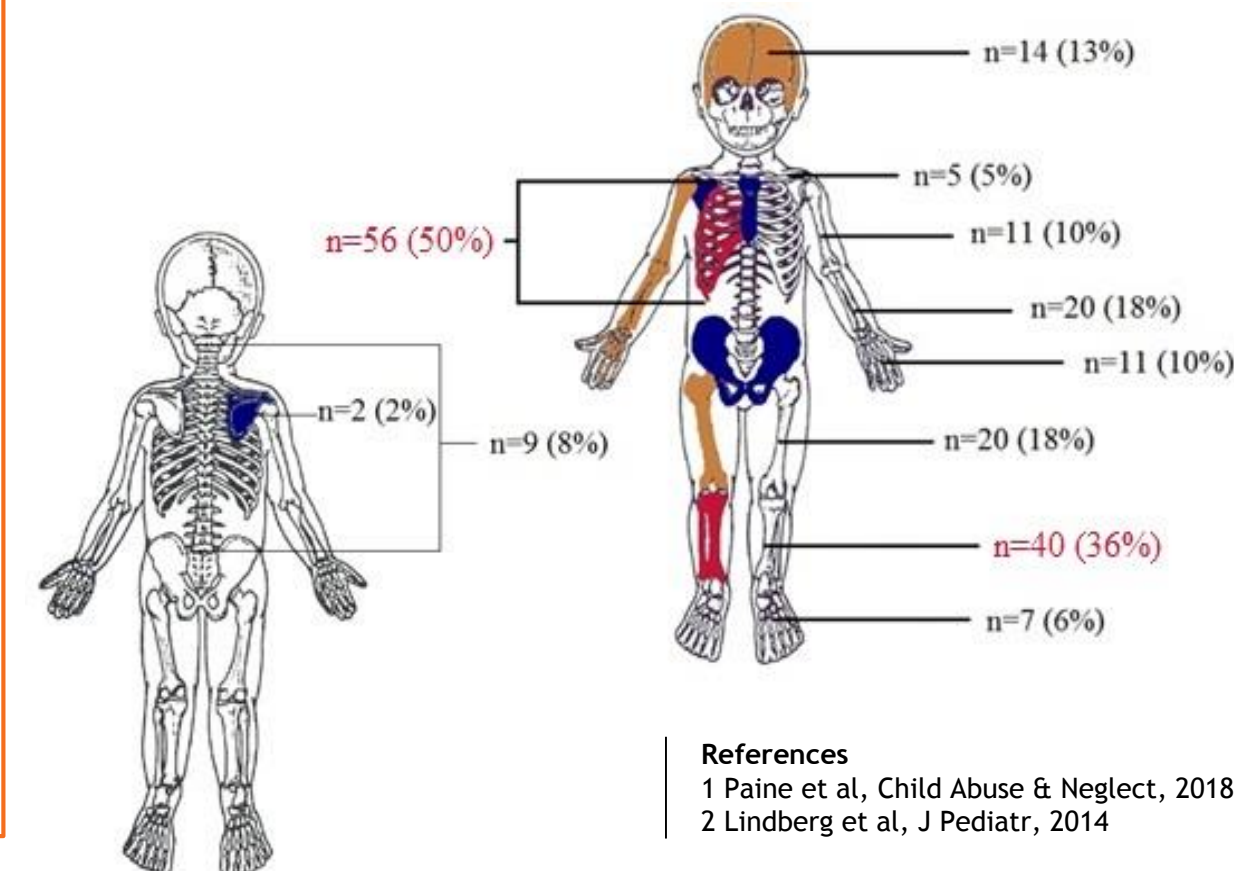
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## Results

296 children - 370 skeletal surveys (36% AMC | 64% second opinion)

**32% Skeletal surveys with occult fractures**  
25% AMC vs 35% second opinion

**Occult fractures per indication**  
Fracture 33/126 (26%)  
Brain injury 28/90 (31%)



**References**

- 1 Paine et al, Child Abuse & Neglect, 2018
- 2 Lindberg et al, J Pediatr, 2014