

and mortality is less clear, with contradictory findings reported regarding the effects of short versus long stays.

**Conclusions:** Overall, patient outcomes were significantly influenced by the aforementioned variables, but there is a lack of consensus and research regarding their impact.

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## To Remove or Retain? Evaluating Hardware Removal in Paediatric Orthopaedics

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Internal fixation devices are used in paediatric fractures to serve a temporary role of supporting the bone until union is achieved. Hardware removal is one of the most performed operations in paediatric orthopaedics despite the lack of evidence based literature and clinical guidelines. The British Orthopaedic Association (BOA) is the specialty association for Trauma and Orthopaedics in the United Kingdom. The BOA's committee produce standards called BOA standards for trauma (BOAST) which are evidence based recommendation documents to guide surgeons in the management of common T&O conditions. There is currently no BOAST document addressing paediatric implant and hardware removal. The routine removal remains a controversial topic. This review evaluates the current evidence regarding indications, risks of removal and outcomes of hardware removal in the paediatric population. Across studies complication rates following removal are around 10%. It is proposed that risks are influenced by anatomical location, duration in situ and length of surgery. Complications of removal include incomplete removal, refracture, infection and neurovascular injury. Potential risks of retaining implants include infection, bony overgrowth, peri-implant fracture and challenges with future procedures like arthroplasty. There is no clear consensus on routine removal versus a selective approach to removal. Current practices are often surgeon preference rather than any evidence-based guidance. Patients or parents may also opt for elective removal where there is pain or irritation

around the implant. Overall, the literature highlights that decisions on removal should be individualised to the patient. The potential benefits of removal must outweigh the risks of removal. Further research is needed to establish evidence-based guidelines.