Less steel, more heal - the changing face of paediatric fracture management and follow-up

Patrick Aldridge and Daniel Perry

Patrick Aldridge is a Consultant Paediatrician at Frimley Park Hospital, Surrey with local and regional roles in patient safety. His clinical time is spent mostly in the emergency department (ED) implementing research into practice and pursuing the elusive four-hour target which fortunately fits his attention span. He also plays tennis and pickleball, badly.

Trauma networks have driven major improvements in the coordination and consistency of trauma care in adult practice. But has paediatric trauma kept up?

The road to now

In 2016 James Hunter, the *Get It Right First Time* (GIRFT) lead for Children's Orthopaedics, wrote of *'The lost art of conservative management of paediatric fractures'*[1], highlighting several fractures which could be managed more conservatively than they now typically are, including clavicle and distal radius fractures. Nearly 10 years of guidelines[2], studies[3-4] and 'Get It Right First Time' (GIRFT) targets have pushed paediatric fracture care towards greater simplicity – no reduction, no fixation, no immobilisation, no follow-up and in some cases even no imaging. Whilst this may be heresy to some readers, there are others amongst you secretly thinking and practicing the same.

So, with all the guidelines and trials, what has actually happened in clinical practice over the last five years?

Analysis

Together with the NHS Strategy Unit we reviewed[5] paediatric fracture management across England 2019-2024 for children under 16 years who attended an emergency department (ED) with a closed fracture of the forearm, elbow, clavicle, tibia/fibula or toe. Patient activity in the emergency care dataset was matched to inpatient/outpatient care episodes for three months after injury, analysing various aspects of care including intervention, imaging and follow-up.

Trends

The analysis identified 137,147 patients with closed fractures of forearm, elbow, clavicle, tibia/fibula or toe recorded in England (2019-2024).

Forearm fractures were the most common injury followed by the elbow, with over 90,000 follow-up appointments across all fractures.

Between 2019/20 and 2023/24:

- The proportion of forearm fractures manipulated in theatre (MUA) decreased by 53% from 8% to 4% per year (2018-19 vs. 2023-24) with over half of forearm fracture manipulations performed in the ED. Of interest, the total manipulation rate (i.e. in either ED or theatre) has fallen by 22%.
- There has been a 5-12% decrease in the proportion of outpatient follow-up for each of the fractures investigated.
- Two-thirds of fractures had at least one follow-up appointment. There was marked variation between Trusts in the proportion of fractures followed-up (6-100%) and the type of follow-up attendance (virtual 25-50% vs. face-to-face), as demonstrated for forearm fractures (Figure 1).
- It is already established that many fractures of the clavicle and toe can be diagnosed without the need for imaging or follow-up, though both imaging and follow-up currently occur in 70-80% of these injuries.

  If follow-up across all hospitals were reduced to be equal to the lowest decile of Trusts, 30,000 appointments (a third of all appointments) could be saved annually across England. If this was reduced to the lowest 5% of Trusts, nearly 70,000 appointments would be saved.
- Many clavicle fractures, commonly accepted to heal without intervention, have two or more follow-up appointments when evidence suggests none are typically required (Figure 2).

Dan Perry is an NIHR Research Professor and Consultant Children's Orthopaedic Surgeon at Alder Hey Children's Hospital, Liverpool. He's also the BOA Specialty Lead for Paediatric Orthopaedic Clinical Trials and a Specialty Editor for the Bone & Joint Journal. Dan is helping to drive a growing portfolio of paediatric trauma and orthopaedic trials www.TOTSresearch.org including FORCE, SCIENCE, CRAFFT, BigBOSS, PICBONE, ODDSocks, OpNonSTOP, BASIS, TOTS, PREPARE and others in development. These studies reflect a national effort by paediatric orthopaedic surgeons across the UK to strengthen the evidence base, with international colleagues increasingly joining in. Together they show that UK research in children's T&O surgery is rigorous, collaborative, fun – and world leading.

CRAFFT Study – impact/culture change

The analysis[5] shows a >50% reduction in theatre MUA's, an increase in ED manipulations and an overall reduction in manipulations (ED or theatre) by 22% over the last five years. So what brought this about? If only it were that easy to measure. However, a marked spike in ED manipulations occurred during the COVID-19 pandemic (early 2020) and is likely the predominant catalyst for many departments on a background of evidence, guidance and culture change which preceded it. Whilst the FORCE[3] study is not about manipulation of fractures it shone a light on the 'less is more' approach and has likely influenced clinicians taking a more conservative approach to forearm fractures – proving that safe care does not always require fracture clinic involvement.

GIRFT has produced guidance and clinical measures to encourage a more conservative approach to fracture manipulation and has undeniably contributed to the culture change demonstrated. The most exciting potential influence on forearm fracture management currently is CRAFFT[6], a multi-centre UK wide study looking at distal forearm fractures (surgical reduction vs non-surgical casting) which will soon publish its primary findings. CRAFFT's impact to date cannot be measured but the graph below of manipulation rates per site (Figure 3) shows study sites (black) are evenly spread across English providers and not clustered to the lower end, suggesting the results will be potentially generalisable. Whilst CRAFFT may have already altered practice at some participating sites, further practice change may be imminent. >>

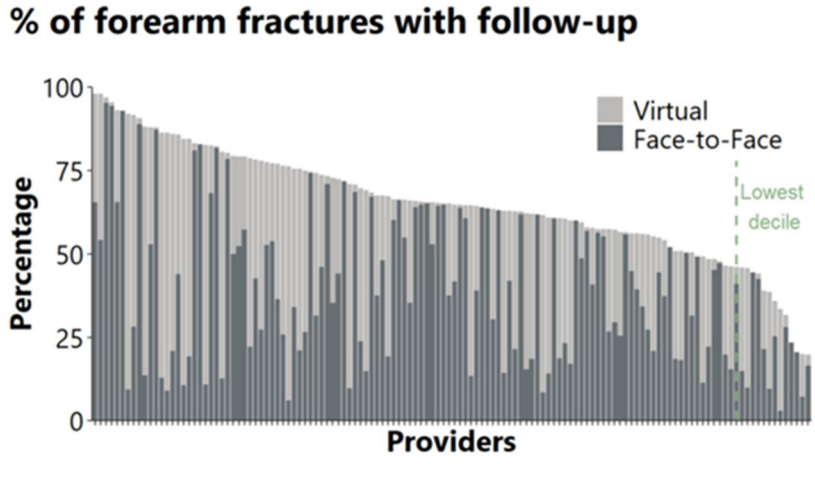

Figure 1: Percentage of forearm fractures with follow-up in England 2022-23 per provider.

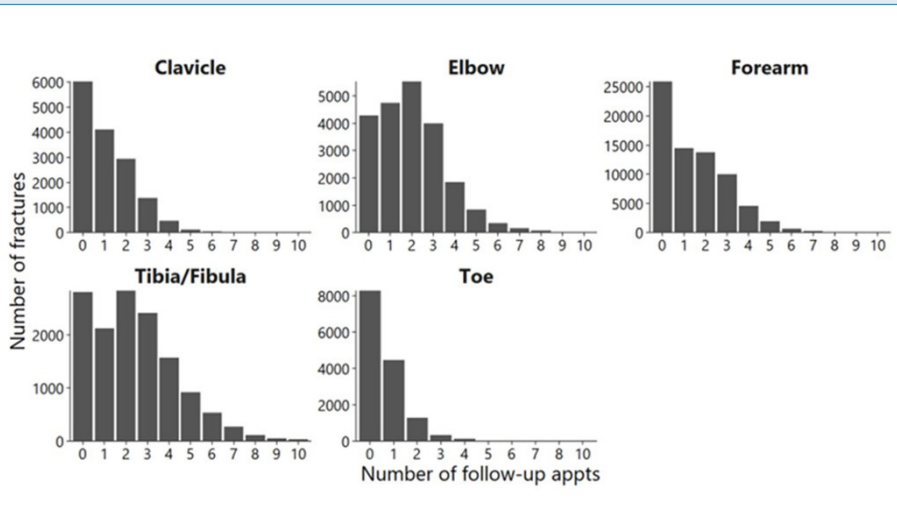

Figure 2: Number of follow-up appointments (including virtual, outpatient and physiotherapy) per fracture for three months after injury in England 2022-23.

Virtual fracture clinic – the false saviour?

So why are so many injuries and fractures followed-up or referred to fracture clinic? This is a multi-dimensional issue but taking a simplistic view, it's the hospital safety net for fractures, injuries and often anything vaguely musculoskeletal. This culture has largely gone unchecked for decades, aside from the advent of virtual fracture clinics (VFCs). To be clear, this is not a criticism of ED referrals *(Author Note (PA) – I work in an ED)*, the safety net approach provided or the creation of VFCs. However, the prevailing culture of ***'fracture = VFC'*** is neither sustainable nor in patients' best interests. Those with long enough memories will recall the near daily bedlam and frustration of fracture clinic overspilling with patients *(Author Note (DP) – I still live in this world!)* and many not needing to be there. The advent of VFC may have reduced the number/frequency of physical clinics, but it's debatable if the overall numbers referred have significantly altered.

The 'left shift' – moving fracture management from hospitals

Whilst the definition of 'left shift' is debatable, the general concept implies shifting delivery of care from hospital to community to improve efficiency and patient access, as outlined by Lord Darzi (2007 & 2024)[7]. Whilst fracture follow-up was not specifically mentioned in the Darzi report, outpatient appointments were noted to have increased by 2.3% between 2008-2023. Darzi noted that *'...simply shifting the setting of care without changing the care model will have a poor return on investment...'*.

VFCs have helped the 'left shift', but not solved the problem – instead, they have repackaged it. We've swapped crowded waiting rooms for crowded inboxes and congratulated ourselves on innovation whilst the conveyor belt of unnecessary referrals keeps rolling. Unless we have the courage to ask the uncomfortable question – *does this patient need to be in a fracture pathway at all?* – we will continue to waste time, money and expertise on contacts that add little (and often nothing) to patient care.

The real disruption is not in digitising old habits but in breaking them. That means redesigning the front door; giving EDs, GPs and urgent care the clarity and confidence to safely manage simple injuries and reserving fracture clinic expertise for those who truly benefit. Until we do, VFCs risk becoming the false saviour of modern orthopaedics: a neat technical fix papering over the cracks whilst the foundations remain flawed.

How to lead the change?

Orthopaedics will say ED should stop referring; ED will say orthopaedics must set the rules. The truth is both are right, but both are wrong.

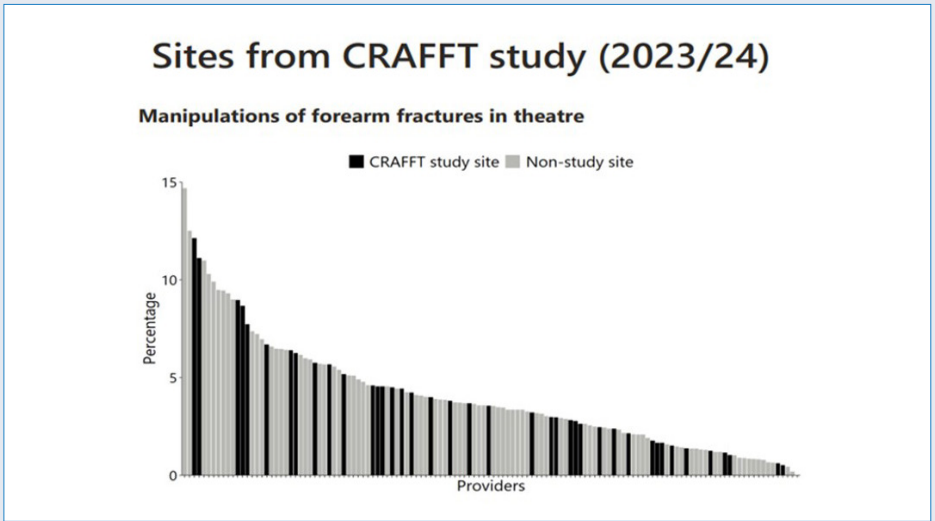

Figure 3: Percentage of theatre forearm manipulations in England 2023-24 by provider.

Passing the blame just keeps the conveyor belt moving. What's needed is joint ownership with ED and orthopaedics working together and pragmatically to set clear, evidence-based rules on which injuries need a pathway and which can be safely discharged. Some grey cases will always be referred when there's genuine doubt – which is acceptable if the referral comes from the *right* clinician. But let's be honest: buckle fractures, most clavicles and a host of other injuries heal perfectly well without us. Keeping them in the system isn't caution, it's clutter. If we can't strip out the cases we know don't need us, then we're not running a fracture service but a reassurance service.

5 key points

1. If the proportion of follow-up appointments in all hospitals were equal to the lowest 5% of providers, 30,000-70,000 appointments could be saved per year in England alone.
2. From 2018-2024 forearm fracture manipulations in theatre have reduced by over 50%, alongside an overall reduction in manipulations (ED and theatre) of 22%.
3. Many clavicle fractures, commonly accepted to heal without intervention, have two or more follow-up appointments when evidence suggests generally none are required.
4. Marked variation exists between Trusts in the proportion of fractures receiving follow-up (6-100%) and the mode of follow-up attendance (virtual 25-50% vs. face-to-face).
5. A combined 5,000 X-rays for clavicle and toe fractures and 2,000 forearm manipulations in theatre could be avoided each year. ■

References

1. Bryson DJ, Shivji FS, Price KR, *et al*. The lost art of conservative management of paediatric fractures. *Bone Joint* 360. 2016 Feb 1;5(1):2-8.
2. BSCOS ED fracture guidance set. Available at: www.bscos.org.uk/Portals/0/downloads/resources/BSCOS%20modifiable%20fracture%20templates.pdf?ver=ppajw6fzwPFg7YlhT5qvKA%3D%3D (Accessed 14/10/2025).
3. Perry DC, Achten J, Knight R, *et al*. Immobilisation of torus fractures of the wrist in children (FORCE): a randomised controlled equivalence trial in the UK. *Lancet*. 2022;400(10345):39-47.
4. Lirette MP, Bailey B, Grant S, *et al*. Can paediatric emergency clinicians identify and manage clavicle fractures without radiographs in the emergency department? A prospective study. *BMJ Paediatrics Open*. 2018;2(1):e000304.
5. The Strategy Unit. Available at: www.strategyunitwm.nhs.uk/sites/default/files/2025-06/paedatric_fracture_management.pdf (accessed 14/10/2025).
6. Perry DC, Achten J, Mason J, *et al*. The protocol for a multicentre prospective randomized noninferiority trial of surgical reduction versus non-surgical casting for displaced distal radius fractures in children : Children's Radius Acute Fracture Fixation Trial (CRAFFT) protocol. *Bone Jt Open*. 2025;6(5):560-8.
7. Darzi, A. (2024) Independent Investigation of the National Health Service in England. Available at: https://assets.publishing.service.gov.uk/media/66f42ae630536cb92748271f/Lord-Darzi-Independent-Investigation-of-the-National-Health-Service-in-England-Updated-25-September.pdf (Accessed 14/10/2025).