Can a virtual fracture clinic reduce the burden of follow up for minor paediatric fractures?

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Buckle fractures of the forearm

- Common, stable fractures
- Usually sustained by a minor fall
- Lack of homogenous guidance in treatment
- Plaster of Paris / Futura splints
- Follow up in fracture clinic
Overview

• Aims and Objectives

• Audit and its rationale
  • Method
  • Results
  • Key findings

• Introduction of Virtual Fracture Clinic

• Conclusions
Aims

1. Review of current practice in the ED and Fracture Clinic

2. To introduce a simple, new pathway for management of torus fractures of the radius/ulna, including a new virtual fracture clinic

3. If successful, broaden the scope of the virtual clinic to include other buckle fractures, e.g. metatarsal fractures.
Audit Measures

• How many children present to the ED with buckle fractures?
• How do we manage these fractures?
• What follow up is arranged?
• What happens in Fracture Clinic?
• What are the benefits of introducing a Virtual Fracture Clinic?
Audit Method

• June 2015 to November 2015

• Inclusion Criteria:
  • Age between 0 and 16 years old
  • Radiology report of buckle-torus fracture of the forearm

• Method of immobilisation

• Fracture clinic follow up
  • Continued immobilisation or change of method of immobilisation?
  • How many follow up appointments?
Results

226 Wrist X-rays

- 96 abnormal X-rays
- 130 Normal X-rays

- 25 Buckle/Torus Fractures
- 71 Other Wrist Fractures

Plaster of Paris, 10
Futura Splint, 14
None, 1
Results

Fracture Clinic, 24

Home, 1

Fracture Clinic: Change in immobilization?

- Switch to Futuro splint: 2
- Switch to POP: 7
- Continued with A&E Management: 11
- Other: 3
Results

Fracture Clinic: Subsequent Follow Up

- 2 weeks: 2
- 3 weeks: 12
- 4 weeks: 6
- Discharged with safety netting: 1
- Other: 2
Key Findings

• Inconsistent management of fractures within the ED

• Almost all children had fracture clinic follow up

• Majority continued with A&E management when seen in fracture clinic

• After first follow up:
  • 14 with Plaster of Paris
  • 9 with Futuro splint

• Only one child was discharged from clinic on first follow up

• Total of 57 Fracture Clinic appointments
A new pathway

1. Introduction of new pathway for buckle fractures in Children’s ED
2. Introduction of new virtual fracture clinic, run by Orthopaedic Consultant.
3. At ED discharge, parents provided with information leaflet explaining virtual clinic, follow up and splint removal.
4. Review of case notes, x-rays and management of patient with buckle fracture by consultant.
5. Patient recalled if fracture needs different management.
6. Discharge letter sent to parents following virtual appointment.
A child presents with a fracture/soft tissue injury

Examine and x-ray patient

Buckle fracture with no obvious deformity
Apply splint
Give patient advice leaflet
Refer to orthopaedic team acutely or Follow up in fracture Clinic, as clinically indicated
Inform patient their case will be reviewed by an orthopaedic surgeon and they will be contacted by a fracture clinic nurse if there are any concerns

No fracture or soft tissue injury

Discharge or Paediatric ED Review Clinic

Other paediatric fractures or buckle fractures with deformity
Refer for acute orthopaedic assessment / Paediatric fracture clinic OPA
## Cost Comparison

<table>
<thead>
<tr>
<th><strong>Existing System</strong></th>
<th><strong>Cost (£)</strong></th>
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<tbody>
<tr>
<td>Fracture clinic: new patient</td>
<td>136</td>
</tr>
<tr>
<td>Fracture clinic: follow up</td>
<td>90</td>
</tr>
<tr>
<td>Application of Plaster of Paris</td>
<td>12 - 15</td>
</tr>
<tr>
<td>Futura Splint</td>
<td>8.50</td>
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<tr>
<td><strong>Total Cost (2 x appointments)</strong></td>
<td><strong>£235 to £240</strong></td>
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<table>
<thead>
<tr>
<th><strong>After introduction of virtual clinic</strong></th>
<th><strong>Cost (£)</strong></th>
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<tbody>
<tr>
<td>Virtual Fracture Clinic</td>
<td>10 - 20 (consultant time)</td>
</tr>
<tr>
<td>Futura Splint</td>
<td>8.50</td>
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<tr>
<td><strong>Total Cost</strong></td>
<td><strong>£18.50 to £28.50</strong></td>
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**COST DIFFERENCE OF AT LEAST £220 PER PATIENT**
Introducing a pathway managing buckle fractures, including a new virtual fracture clinic

### Why a virtual fracture clinic?

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<tr>
<th>Benefits to child</th>
<th>Benefits to parent</th>
<th>Benefits to trust</th>
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<tbody>
<tr>
<td>Streamlined journey with reduced clinic attendances</td>
<td>Can attend school on clinic day</td>
<td>Fracture clinic time</td>
</tr>
<tr>
<td>Reduced effect of “sick role”</td>
<td>Reduced time in Futura splint &amp; can wash!</td>
<td>Consultant time</td>
</tr>
<tr>
<td>Reduced time in Futura splint &amp; can wash!</td>
<td>Do not have to take time off work, which could affect income</td>
<td>Plaster technician time</td>
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<tr>
<td>Do not have to arrange childcare for other children</td>
<td>Avoids the journey too and from hospital</td>
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<td>Save transport / car parking costs</td>
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Conclusions

• Cost savings over the 6 month period:
  • Estimate of £5000 for our cohort of patients if seen in virtual fracture clinic
  • Additional savings if given correct immobilisation

• Significant wider benefits to children and their parents

• Clinic started in beginning of September 2016

• Excellent early feedback

• If successful, aim to extend for other minor fractures
Any Questions?
References

• Competing interests: None declared

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• Plint AC, Perry JJ, Correll R, Gaboury I, Lawton L; A randomized, controlled trial of removable splinting versus casting for wrist buckle fractures in children; Pediatrics 2006;117(3):691-7

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