**Buckle up & splint it, don’t POP it! – A Quality Improvement Journey**

**Patient story**
An 8 year old girl attends the Emergency Department (ED) after a fall. She is put in a plaster cast (POP) for a distal dorsal buckle fracture of her wrist. Her mum is concerned as she will not be able to apply the creams that help with her daughter's severe eczema.

**Question:** Is there an alternative?
**Answer:** A literature review and local/national practice said YES!

**Aim**
To develop a pathway that uses splints for distal dorsal buckle fractures in children, that is safe, acceptable to patients/parents and cost effective.

**Methods**
- Literature review and review of local/national practice
- Driver diagram to identify drivers, outcome and balancing measures
- Stakeholder analysis and change matrix
- Process mapping
- PDSA cycles including questionnaires, local feedback, pathway development and simulated testing, departmental teaching, and audit of implemented pathway

**Outcomes** (March 2015-16)
- Preference: 84% would prefer a splint.
- Pathway/patient information leaflet: developed after multiple PDSA cycles
- Pathway use:
  - 195 buckle fractures of which 92 were suitable for the pathway
  - Of those suitable, 96% (88) were put on the pathway
- Balancing measures
  - 5 (6%) returns in splint group compared to 8 (9%) in the POP group
  - 5 volar fractures, 2 were inappropriately managed with a splint. Delay in identification due to failure of safety net system. No concerns regarding morbidity
- Follow up questionnaire:
  - 20% (18) were followed up
  - All satisfied with splint, felt it more convenient and would prefer this over a POP
- Financial savings:
  - £7920
- Nursing time saved:
  - 26 hours
- Time in department:
  - 51 (splint) vs 68 minutes (POP)

**Challenges:**
- How to prevent splinted volar buckles?
- How to ensure safety net working?
- Introduction of new NICE guidance after implementation – does this change things?
- Poor follow up, particularly of those managed inappropriately

**Reflection on the journey**
- A largely successful QI project:
  - Safely managed and satisfied patients
  - Time and financial savings for patients, staff and departments
- Don’t underestimate the power of the MDT to make things happen!
- An awareness of your own personality type can help you identify the skills you bring

### Distal DORSAL forearm buckle fracture pathway

<table>
<thead>
<tr>
<th>Decision Point</th>
<th>Action</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Is the fracture in the distal 1/3 of the forearm?</td>
<td>Yes</td>
<td>Fracture is not a distal dorsal buckle fracture.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Likely to be a distal dorsal buckle fracture. Refer to the splinting pathway.</td>
</tr>
<tr>
<td>Is the volar cortex intact?</td>
<td>Yes</td>
<td>Volar cortex intact. Fracture can be splinted safely.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Volar cortex disrupted. Fracture is not suitable for splinting. Refer to the POP and fracture clinic.</td>
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<tr>
<td>Dorsal angulation &lt;30° (Ficat &amp; Moseley Classification)</td>
<td>Yes</td>
<td>Fracture can be splinted safely.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Fracture is not suitable for splinting. Discuss with senior regarding whether orthopaedic opinion needed or POP and fracture clinic is appropriate.</td>
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<tr>
<td>Will they tolerate a splint?</td>
<td>Yes</td>
<td>Apply splint.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Patient details: POP and fracture clinic.</td>
</tr>
</tbody>
</table>

**References**