Capture the First Fracture
A Collaborative Co-Designed Intervention to
Improve Incidental Vertebral Column Fracture
Identification and Onward Referral

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Osteoporosis is a chronic condition that can severely affect quality of life.

Vertebral compression fractures (VCF) are the most common form of osteoporotic fractures.

Early detection gives an opportunity for secondary fracture prevention.

3 million people in the UK have osteoporosis.

12% of women aged 50-70 have VCF.

Up to 70% of VCFs are undiagnosed.
1. To embed a systematic and direct referral process between Radiology and the Fracture Liaison Service (FLS) using quality improvement (QI) methodology.

2. To encourage radiologists to:
   a) Actively seek VCFs apparent on any imaging that includes the thoracic and/or lumbar spine.
   b) Report vertebral fractures clearly and unambiguously.
   c) Engage with the FLS pathway by inserting trigger phrase in report.
Multiple Plan, Do, Study, Act (PDSA) cycles were used to test engagement strategies.

Live data was retrieved weekly from CRIS (Radiology Information System), and the number of cases were plotted on a run chart to assess the effectiveness of interventions.

Initial audit was undertaken to examine accuracy of our detection and grading of VCF across modalities, in order to identify areas of improvement in reporting. Re-audit was performed 5 months after launch of pathway.

Regular communication between FLS and the Radiology department were pivotal to ensure we got feedback.
<table>
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<tr>
<th>Strategy</th>
<th>Implementation</th>
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<tr>
<td>Engage stakeholders</td>
<td>Involve patient representatives, fracture liaison service, radiologists, reporting radiographers and CRIS managers</td>
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<tr>
<td>Set up the FLS referral pathway</td>
<td>Implement a clear referral pathway from Radiology to FLS</td>
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<td>Promote the collaboration</td>
<td>Discuss at departmental consultant meeting and promote the pathway via departmental email</td>
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<td>Standardise referral</td>
<td>Insertion of trigger phrase on VR</td>
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<td>Improve referral efficiency</td>
<td>Insertion of VR template on PACS</td>
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<td>Improve communication</td>
<td>Repeat departmental email</td>
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<td></td>
<td>Presentation of pathway at the departmental audit meeting</td>
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<td>Create clear standards</td>
<td>Poster campaign to encourage referral and to standardise reporting terminology</td>
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<td>Assess current practice</td>
<td>Re-audit of data to assess interventions</td>
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<td>Identify useful interventions</td>
<td>Assess the run chart with interventions</td>
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<td>Encourage good practice</td>
<td>FLS emails with updates of referrals</td>
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Results: Number of Referrals

Run Chart of Number of Referrals to FLS
• Through a collaborative multidisciplinary effort, we have set up an embedded referral system to increase the number of VCFs identified.

• The numbers of referrals were reviewed weekly, and allowed us to perform appropriate interventions to encourage the number of referrals.

• To date, a total of 649 patients with incidental VCF were identified, with 400 now on a treatment pathway.
In each audit, we reviewed 300 consecutive studies in different modalities (100 plain films, 100 CTs and 100 MRIs) which included the thoracic +/- lumbar spine to assess:

- If VCFs have been identified correctly and reported accurately
- If recommendation for further assessment (FLS trigger phrase) has been included in the report

The re-audit demonstrated improvement in all of our targets over the course of 5 months.

While the results are encouraging, continued effort should be made in maintaining the level of accurate reporting, and in increasing referral numbers.
Conclusion

• Vertebral compression fractures are one of the most common forms of osteoporotic fractures, and early identification allows for secondary prevention and improvement in quality of life.

• Through a collaborative effort, we have successfully embedded a trigger phrase denoting incidental VCF identification, with a streamlined FLS referral pathway.

• Future work must involve sustaining (and further improving) FLS referral and improving the reporting accuracy of VCFs.
Collaborative Multidisciplinary QIP

• Early stakeholder analysis allowed us to ensure that the right professionals were engaged in the project from design to implementation.

• Multidisciplinary team working resulted in a much wider breadth of knowledge and skills which could be put to use right across the patient pathway.

• Collaboration of this kind was not only effective and patient-centred, but also resulted in much shared learning and relationship building - both enduring assets.

• Multidisciplinary team involvement in quality improvement and service redesign is an increasingly useful tool for radiologists whose practice often situates them as an important nexus between disparate teams.