

# **Capture the First Fracture**

## ***A Collaborative Co-Designed Intervention to Improve Incidental Vertebral Column Fracture Identification and Onward Referral***

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# Introduction

## Background:

- 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.

## Issue:

- 3 million people in the UK have osteoporosis.
- 12% of women aged 50-70 have VCF.
- Up to 70% of VCFs are undiagnosed.

# Goal

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.

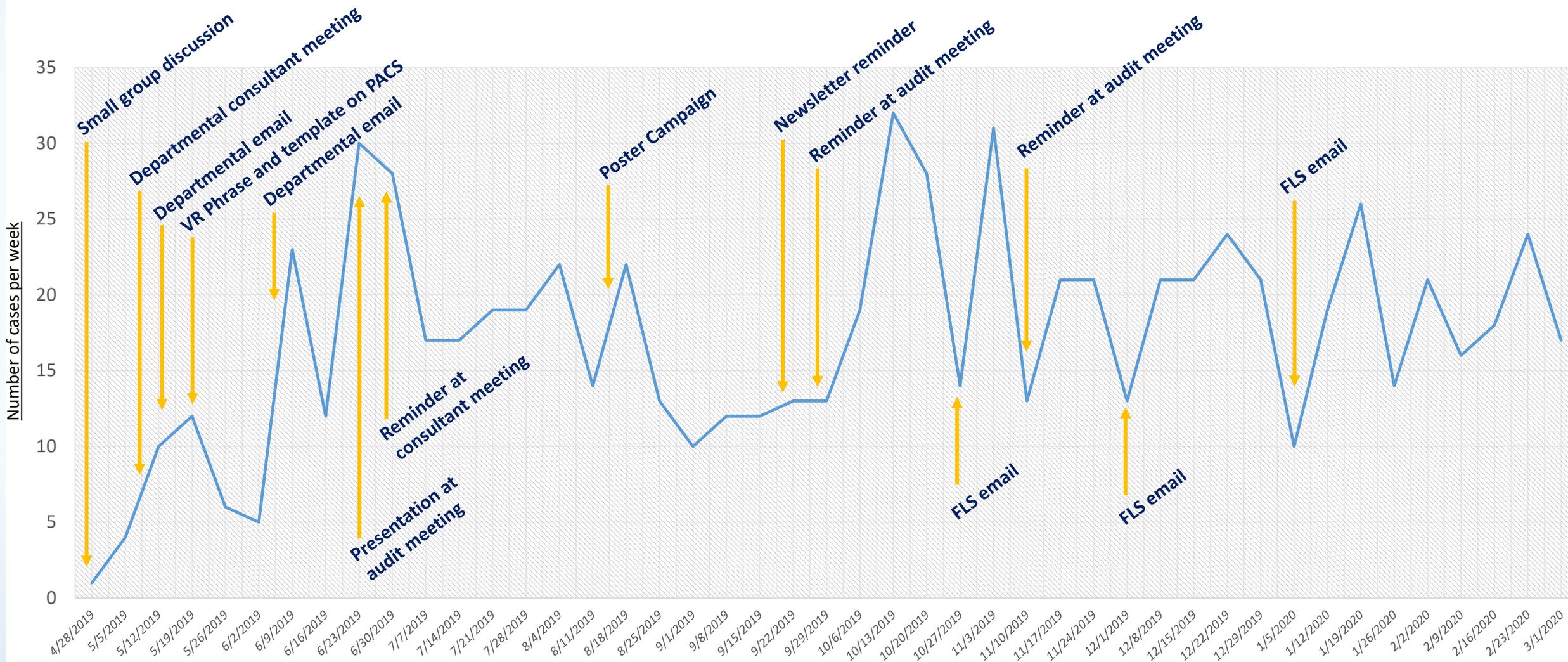
# Method

- 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.

| Strategy                               | Implementation   |
|--|--|
| <b>Engage stakeholders</b>             | Involve patient representatives, fracture liaison service, radiologists, reporting radiographers and CRIS managers |
| <b>Set up the FLS referral pathway</b> | Implement a clear referral pathway from Radiology to FLS   |
| <b>Promote the collaboration</b>       | Discuss at departmental consultant meeting and promote the pathway via departmental email                          |
| <b>Standardise referral</b>            | Insertion of trigger phrase on VR  |
| <b>Improve referral efficiency</b>     | Insertion of VR template on PACS   |
| <b>Improve communication</b>           | Repeat departmental email<br>Presentation of pathway at the departmental audit meeting                             |
| <b>Create clear standards</b>          | Poster campaign to encourage referral and to standardise reporting terminology                                     |
| <b>Assess current practice</b>         | Re-audit of data to assess interventions   |
| <b>Identify useful interventions</b>   | Assess the run chart with interventions  |
| <b>Encourage good practice</b>         | FLS emails with updates of referrals   |

# Results: Number of Referrals

## Run Chart of Number of Referrals to FLS



# Results: Number of Referrals

## Number of referrals per month:

May 2019: **32**

June 2019: **98**

July 2019: **72**

Aug 2019: **71**

Sep 2019: **60**

Oct 2019: **93**

Nov 2019: **86**

Dec 2019: **100**

Jan 2020: **69**

Feb 2020: **96**

- 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.

# Results: Audit

|  | <i>No. of VCFs identified</i> | <i>Comment on T/L spine appearance</i> | <i>Moderate/severe # correctly identified</i> | <i>Vertebral # reported with correct terminology</i> | <i>Recommendation for further assessment</i> |
|--|-------------------------------|--|---|--|--|
| <b>Initial Audit</b><br><i>June 2019</i> | 40                            | 40<br>(100%)                           | 8<br>(20%)                                    | 31<br>(78%)  | 11<br>(28%)                                  |
| <b>Re-audit</b><br><i>November 2019</i>  | 30                            | 30<br>(100%)                           | 23<br>(77%)                                   | 26<br>(87%)  | 13<br>(43%)                                  |

- 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.