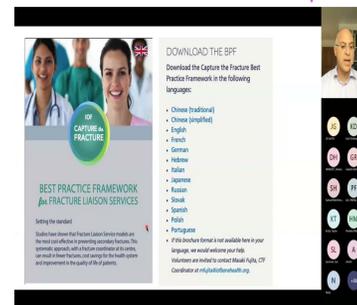
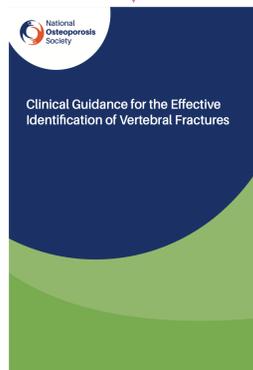
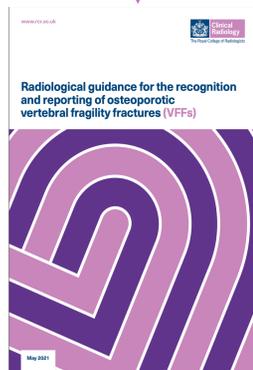


Radiology Reporting of Incidental Osteoporotic Vertebral Fragility Fractures on Computed Tomography Studies – Results of a UK National Re-Audit

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Background

- Vertebral fragility fractures (VFFs) are the most common type of osteoporotic fracture and are associated with significant morbidity and reduced survival.
- ≥ 3.75 million individuals in the UK have osteoporosis with an estimated annual 527,000 fragility fractures; three quarters of which are female.
- Over 55% of patients with hip fractures had radiological evidence of a previous VFF.
- VFFs are associated with a direct cost of over £5 billion and a predicted 26% increase in the number of fractures by 2034.
- In 2019, the Royal College of Radiologists, Royal College of Physicians and Royal Osteoporosis Society undertook a UK-wide audit to evaluate patient-related data and organisational infrastructure in the radiological reporting of VFFs on computed tomography (CT) studies.
- The audit demonstrated a lack of compliance with targets and subsequently a series of RCR-led interventions were initiated to raise VFF awareness.



Editorial in the Clinical Radiology Journal

Publication in the European Radiology Journal

National Radiological Guidance

ROS Local Quality Improvement

Discussions at Local Departmental REALM

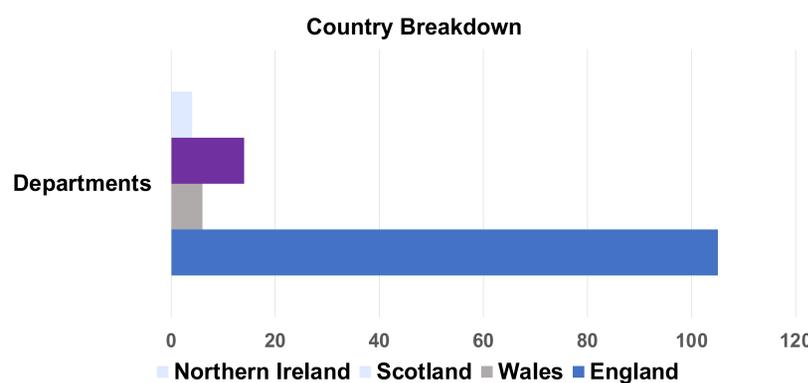
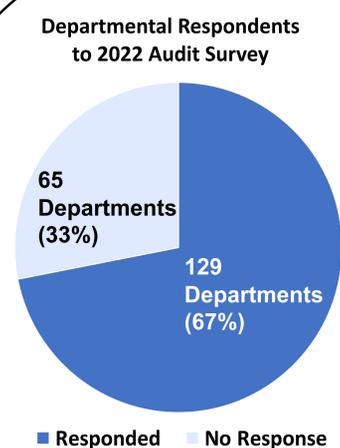
RCR hosted Webinar

- National re-audit in 2022 was undertaken to assess the impact of these interventions on reporting practice and outcomes.

Method

- All UK radiology departments with an audit lead registered with the RCR were invited to participate in this retrospective audit.
- Patient-specific component of the audit involved analysis of CT reporting data acquired from 50 (maximum 100) consecutive non-traumatic studies including the thoracolumbar spine. Exclusion criteria included a history of trauma and patients with known metastatic bone disease or myeloma.
- Genant semi-quantitative technique - which most UK radiologists are familiar with - was used to assess and grade VFFs.
- Organisational-specific questionnaires assessed various departmental protocols including acquisition of sagittal bony reconstruction, alert system for VFFs diagnosis, and onward referral system for Fracture Liaison Service (FLS) or clinical specialist.

Key Results



	2019	2022
Number of patient data collated	6357	7316

Patient Data

		2019		2022	
Guidance Recommendation	Target	%	n/N	% (% point change)	n/N
Comment on integrity of the bones	100%	78.8%	4930/6256	93.2% (+14.4%)	6819/7315
Comment on severity of fractures	90%	26.2%	161/614	34.7% (+8.5%)	275/793
Use of recommended terminology "vertebral fracture"	100%	60.3%	370/614	67.8% (+7.5%)	539/795
Recommendations for referral/further assessment	100%	2.6%	16/607	11.7% (+9.1%)	92/788

Organisational Data

- 21.2% point improvement to 69.9% in sagittal reformats availability and spine/bone review.
- 26% point improvement to 46% in implementing departmental alert policy for VFFs.
- 31% point improvement to 50% in implementing an agreed onward referral pathway for patients with VFF which is also increasingly utilised by teleradiology.
- 11% of departments have appointed a radiology lead for osteoporosis as recommended in the 2021 RCR guidance.
- 17% of departments have reviewed the 2021 RCR VFF reporting guidance in their local governance meeting.
- 82% of departments have already or are very likely to change their practice as a result of the 2021 RCR guidance and/or the 2022 re-audit.
- Only 1% of departments have implemented an artificial intelligence solution to screen CT imaging for VFFs, 13% are exploring the possibility.

Conclusion

- Early and opportunistic diagnosis of vertebral fragility fractures reduces patient morbidity and mortality.
- Following a national audit in 2019, a series of RCR-led interventions were initiated to improve radiological awareness of VFFs.
- A national re-audit in 2022 confirms generalised improvements in patient and organisation specific VFF reporting data.
- Continued work is required to sustain and build upon demonstrated improvements.
- Artificial intelligence is likely to assume a more important role in VFF diagnosis, but radiological involvement will remain essential.

References

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