DXA VFA focus guide- analysing VFA scans

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Introduction

Vertebral fractures are the most common osteoporotic fracture, increase morbidity and mortality and increase the risk of future fractures. They are often under-diagnosed, therefore opportunities to diagnose vertebral fracture within DXA services are important.

VFA scans, in the UK, are regulated under IR(ME)R and as such are subject to 'justification' and 'optimisation' as part of these regulations. Accurate and reliable VFA scan acquisition relies wholly on *quality* acquisition and post scan analysis technique by operators and reporters with training and expertise in the VFA. Both of these elements are integral parts of 'optimisation' under IR(ME)R.

For centres to be confident their VFA scan analyses are optimised and reliable:

- Scans must only being analysed by a small team of well trained and skilled operators
- Robust protocols and standard operating procedures must be in place
- Routine evaluation, audit and review cycles of clinical practice should be embedded as culture

This focus guide is developed from the ROS National Training Scheme for Bone Densitometry lecture course and VFA scan protocols from clinical services.

Point and Purpose

This guide sets out the expected standards for optimal VFA analysis.

It is designed for DXA teams to be able to:

- Provide reliable VFA clinical evaluation and reports
- Write and develop local standard operating procedures for scan acquisition and analysis
- Measure performance against the standards and integrate with quality improvement programmes
- Support delivery of quality improvements in VFA analysis technique

So that:

VFA scans are optimised and provide the best opportunity to identify vertebral fractures in appropriate patients and that they can access appropriate care to reduce the risk of further fractures.

VFA analysis guide

Optimal scan acquisition

1) The scan starts in L5 or L5/S1- so that L4 is fully identifyable
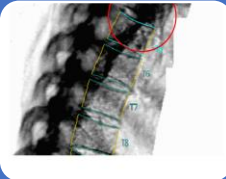
2) The scan ends at T4 where possible

3) The posterior elements of vetrebrae are included posteriorly

4) The prevertebral soft tissue is included (the whole of all vertebral bodies are included)

5) The spine is in the true lateral position with the vertebrae visualised as rectangular boxes and the posterior of the vertebral bodied projected as a single line
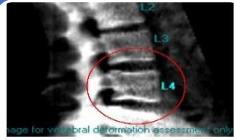

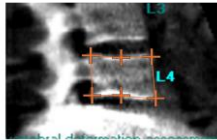6) The ribs and iliac crests are superimposed
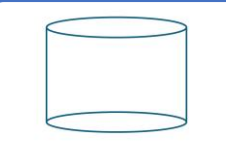
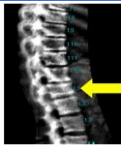7) Where there is a socliosis that padding has been used to prevent parllax effect
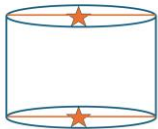
Analysis

 1) Identify L4

 2) Label posterior, mid and anterior vertebral edges at L4 accutately using the manufactuers analysis tools

 3) Check levels are identified correctly

 4) Scruitinise vertebrae individually, identify the end plates, place vertebral markers carefully and assess for parallax effect- correct this where appropriate

 4a) Parallax mangement to avoid mis-interpretation: place the mid vertebral markers at the mid point between superior and inferior endplates where parallax is confimed

 5) Complete vertebral assessment and verify automated analysis and identification of vertebral deformities