BONE DENSITY (DXA SCAN) REFERRALS

Referring Patients for DXA Bone Mineral Density Scanning at Queen Elizabeth Hospital, Birmingham

Introduction

DXA scans for assessment of bone density and fracture risk can be authorised with the following Authorisation Criteria protocol by named DXA operators with the appropriate training and authorisation from the Lead IR(ME)R Practitioner (Dr Fady Khattar). Those who are permitted to act under this protocol are listed at the end of this document.

The Ionising Radiation (Medical Exposure) Regulations [IR(ME)R] 2017 make it necessary for all investigations using ionising radiation to be justified on an individual patient basis. To meet this requirement, the Bone Density department has produced the below table of referral criteria which, if met, would justify a DXA scan under most circumstances. These are taken from professional body guidelines including:

- National Osteoporosis Guideline Group (NOGG) Clinical Guideline for the Prevention and Treatment of Osteoporosis 2024
- NICE Guideline (NG259) Osteoporosis: Risk Assessment
- NICE Quality Standard (QS149) Osteoporosis

Referring Patients

Referrals can be accepted from personnel authorised to act as Referrers under IR(ME)R 2017.

The name of the referrer and Consultant must be clearly stated on the request, even if these are the same person. Referrals must be accepted as per Points 4.1-4.3 and 5.1-5.16 in Trust IRMER Procedure 2 and those identified within Appendix 1 Table 1. Referrals from Approved Named FLS Nurses and Approved Named NMRs can also be accepted.

- Procedure for the Referral of Imaging and Nuclear Medicine Examinations by Non-Medical Referrers
- Ionising Radiation (Medical Exposure) Regulations 2017
  Procedure 2: Identification of Duty Holders under IR(ME)R 2017
- Expanded Practice Protocol for Registered Nurses to Refer Patients for DXA Scans Examinations (as defined by IR(ME)R 2017)

Clinical Information

Under IRMER, it is essential that requests for DXA scans contain sufficient clinical detail to allow the justification and authorisation of the procedure by designated and appropriately trained DXA Operators in accordance with Authorisation Criteria protocol and with authorisation from the lead IRMER Practitioner.

The referrer must supply the DXA practitioner with sufficient medical data (such as previous diagnostic information or medical records) relevant to the medical exposure requested by the referrer to enable the practitioner to decide whether there is a sufficient net benefit.

Please note that the referrer remains responsible for the referral even if the task is delegated to another hospital doctor acting on their behalf.

Patient Information Request

The following information about the patient is required as a minimum:

- Patient's full name
- Patient's NHS Number
- Date of Birth
- Address
- Hospital Number/PID
- Examination Requested
- Sufficient clinical information relevant to justify the medical exposure requested (We cannot authorise based on FRAX score alone. Please provide relevant clinical information entered into FRAX (incl. height and weight) to obtain score for us to vet against)
- Indication of pregnancy and breast feeding as appropriate
- In the case of pregnancy, the referrer should confirm that a risk benefit discussion with the patient has taken place and appropriate
- Mobility Status
- Co-morbidities (where relevant)
- Medication
- Signature of referrer (this may be physical or in terms of an electronically validated request)
- Clearly legible name and job title of referrer
- Date of referral
- Name of Consultant
- Hospital/Ward/Department/GP Surgery
- Research Trial (should be clearly identified and on designated Research Form)

Please be patient if the DXA team contact you to ask for more information. Any referral not providing appropriate information as above will not be progressed and the department will contact the referrer accordingly.

Radiation Protection to Other People

DXA scans are commonly performed and are safe. There will be exposure to very low dose x-rays, but there are no side effects and patients will not pose any radiation risk from the scan to other people.

Radiation Dose to the Patient, Pregnancy and Breastfeeding

The radiation dose received by the patient from a DXA examination is very low. DXA in the pregnant patient is however not advised due to the very low dose that would

also be received by the foetus. In the extreme case that a scan is required during pregnancy, the referrer should have a risk-benefit discussion with the patient prior to referral.

Possibility of pregnancy must be assessed in all individuals of childbearing potential in the age range of 11-55 years old, inclusive.

DXA effective doses (µSv)

Anatomical Region	**iDXA (µSv)**	**For comparison**	**(µSv)**
Lumbar spine	3.4	Daily Background Radiation UK	5.5
Hips (each)	3.05	Daily Background Radiation Cornwall	20.5
Forearm	0.1	Chest XRay	12
VFA	12.1	Lumbar spine XRay	700
Whole Body	1.0	Chest CT	8000

Cancelling Referrals

Please note that if a referral is made and then cancelled by the Referrer, the DXA team MUST be contacted (see details below) to cancel the request.

DXA Department
bonedensitybookings@uhb.nhs.uk
0121 371 2278

Reports

Patients referred will have images on PACS and reports available on PACS, CRIS, PICS and Clinical Portal once they are finalised. External reports and images will be sent via Image Exchange Portal (IEP).

DXA Referral Criteria

<table>
<tr><th colspan="2">Acceptable Criteria for Baseline Referrals</th></tr>
<tr><td>Skeletal</td><td>Reproductive</td></tr>
<tr><td>

Low trauma/fragility/vertebral fracture (females <75years or >=75 if multiple fragility fractures or if bisphosphonates may be contraindicated or PTH therapy is being considered, males at any age)
Recent non-traumatic fracture despite current treatment with bisphosphonates
Parental history of hip fracture
1st degree relative with osteoporosis (T<-2.5)
Unexpected evidence of osteopenia on imaging
Kyphosis
Significant height loss (>4cm)
Osteogenesis Imperfecta
Pre-operative assessment for spinal surgery

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Untreated male or female hypogonadism, e.g. untreated early menopause, premature ovarian failure (<45 years)
Premature ovarian failure < 40 years, on transdermal oestrogen with concerns about absorption
Pre-HRT assessment (Dr Williamson BWH Menopause Clinic referrals only)
Critical decisions regarding HRT
Unexplained prolonged amenorrhoea (>12 months)
Depo-induced amenorrhoea (>5 years)
Prostate cancer taking androgen deprivation therapy (ADT) e.g. Prostap
Chromosomal disorders (Turner Syndrome, Klinefelter Syndrome)

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<tr><td>Disease / Chronic Inflammatory Conditions</td><td>Malnutrition / Metabolism</td></tr>
<tr><td>

Organ transplantation
Liver disease e.g. PBC, liver failure
Primary hyperparathyroidism
Cushing’s syndrome
Late-treated thyrotoxicosis
Chronic inflammatory conditions, e.g. rheumatoid arthritis, AS, SLE, CTD, Vasculitis
Prolonged immobilisation
Progressive movement disorder e.g. Parkinson’s Disease, Multiple Sclerosis, Cerebral Palsy
HIV positive (+/- ARV Therapy)

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Malabsorption syndromes, e.g. Crohn’s, ulcerative colitis
Coeliac disease and high risk for osteoporosis
(BSG guidelines 2007), e.g. 2 or more of:-

Persisting symptoms on GF diet for 1 year or poor adherence to GF diet
Weight loss >10%
BMI <20
Aged >70

Anorexia nervosa (BMI <19)
Glycogen storage disease, galactosaemia, Pompe disease, Gaucher disease
Alcohol abuse (>2 units per day)
Type II diabetes on glitazones

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<tr><td colspan="2">Medication</td></tr>
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Current or expected steroid exposure (aged <65years)
Current or expected aromatase inhibitor treatment
Anticonvulsants
Bisphosphonates taken for ≥5 years
Current or expected parathyroid hormone treatment
GnRH analogues (Prostap, Ryeqo, Zoladex)

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Follow-up DXA scans should be performed **only if the result will affect patient management** and at intervals of not less than 2 years.

Acceptable Criteria for Follow-up Referrals
(minimum scan interval 2 years, unless otherwise specified)

- Request by metabolic bone clinical specialist following a previously low DXA scan
  - scan at ≥ 2 years (or ≥ 1 year for Romosozumab) or refer to practitioner if other specific reason to scan at < 2 years
- Fracture risk still present and untreated (see above) and previous T < -1
- Continued steroid exposure untreated since previous scan
- Considering stopping HRT
- Decisions regarding PTH therapy and bone management
- Monitoring long-term AI exposure (NCRI/NOS guidelines 2008):-
  - Women ≥ 45: repeat every 2 years if last -2 < T ≤ -1 and not on bisphosphonate
  - Women < 45: repeat DXA at 2-yearly intervals while on AI
  - Repeat once at 2 years after starting bisphosphonate
- Monitoring effect of Depo-induced amenorrhoea for ≥ 5 years
  - Repeat at 3-5 years if -2 < T ≤ -1
- Treatment with bisphosphonates for ≥ 5 years
- Recent non-traumatic fracture despite current treatment with bisphosphonates