

DXA Reporting For Clinicians

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Lead Reporting Radiographer

Golden Jubilee National Hospital

A Module From:



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POSTGRADUATE COURSE

BONE DENSITOMETRY REPORTING PG Cert

During this course you'll develop your understanding of osteoporosis and the role of DXA within the management of fracture risk.

Web Addresses

Bone Densitometry Reporting PG Cert -
Radiography - University of Derby - derby.ac.uk

<https://www.derby.ac.uk/postgraduate/radiography-courses/bone-densitometry-reporting-pg-cert/>

www.derby.ac.uk

Course details

Study options

Part-time: 15 months

UK/EU fee

£800, £900 or £1,000 per 20 credits*
(2019/20)

Course level

Postgraduate

Qualification

PG Cert

Start dates

January, September

Location

Kedleston Road, Derby Campus

Modules:

➤ DXA Reporting for Clinicians – 40 Credits

+ One of the following included within the MSc Advanced Practice- 20 Credits:

➤ Advancing Practice

➤ Assessment, Prevention and Management of Falls (Theory)

➤ Principles of Service Improvement in the Workplace

➤ Theoretical Considerations in the Diagnosis and Management of Osteoporosis

➤ Work-Based Negotiated

Course Description

- Flexible
- Increase knowledge in the fields of fracture prevention
- Tailor learning by choosing specific modules
- Provide an in-depth knowledge of DXA scanning and reporting.
- Taught by health care professionals.
- Develop understanding of osteoporosis and the role of DXA within the management of fracture risk.

Preparation

- Scanning
- Pre-course qualifications in Osteoporosis
- Pre-course Reading
- Mentorship

Formative Assessment

In 3 parts to address 3 Learning Outcomes in 3 varying formats.

1. Report template – **By __March**
2. Progress reports – **End of April & July**
3. Mock Objectively Structured Clinical Assessment
- **__May**

Summative Assessment

In 3 parts to address 3 Learning Outcomes in 3 varying formats.

1. Portfolio – 80% weighting – **By Tuesday, 9th October**
2. Written assignment on Vertebral Fracture Assessment – 20% weighting - **By Tuesday, 9th October**
3. Objectively Structured Clinical Assessment – **Wednesday, 5th September (Pass/Fail)**

THE PROGRAMME CALENDAR AND TIMETABLE

30th January – 13th October 2018

Study days:

DXA Reporting for Clinicians (1 & 2) – Monday/Tuesday 29/30 January 2018

DXA Reporting for Clinicians (3 & 4) – Monday/Tuesday 14/15 May 2018

Assessment:

Submission for formative assessment (report) – Tuesday, 13th March, 2018

Mock OSCA – Tuesday, 15th May, 2018

OSCA – Wednesday, 5th September 2018

Submission date for Portfolio & assignment – Tuesday, 9th October, 2018

Portfolio:

Intended to reflect a range of clinical experiences that have impacted upon the development of the student's reporting skills.

- **100 reports**
- **An audit of these Reports**
- **20 extended reports/case studies**

All patient identification information removed.

Presentation of portfolio

In addition to the previous, the portfolio should include:

- **Local guidelines – referrals, investigations, recommendations (if referring to these in your reports)**

With, as available:

- Contents page
- Introduction (setting the scene for your service)
- Local protocols, Standard Operating Procedures,
- Glossary/Definition of terms used in reports – i.e: lifestyle guidance

Written 2000 word assignment

2000 word assignment considering the role of DXA acquired Vertebral Fracture Assessment (VFA) in fracture risk assessment.

Essay titles:

1) Should DXA acquired Vertebral Fracture Assessment be a routine part of any examination in a densitometry service?

OR

2) Write a briefing paper for your health care organisation justifying the purchase of the necessary hardware and/or software to enable the additional functionality of DXA acquired Vertebral Fracture Assessment in your service.

Objectively Structured Clinical Assessment (OSCA)

An OSCA involving a test bank of 4 DXA scans.

For each image the student is

- Given clinical referral details.
- They will then be expected to analyse the DXA image and present a verbal report.
- The student will be expected to conclude the analysis by giving a patient management opinion in support of the appearances described.

DXA Reporting For Clinicians:

My experience

- Reporting Radiographer
- Stand alone module
- Preparation for reporting DXA scans
- Started scanning in the September before taking the course as preparation.
- Questionnaire
- Vertebral Fracture Assessment

Previous Questionnaire:

Golden Jubilee National Hospital
Agamemnon Street
Clydebank G81 4DY
National Waiting Times Centre Special Health Board



**PLEASE ATTACH CHI
BARCODE LABEL HERE**

BONE DENSITY CHECKLIST

(PLEASE COMPLETE AND BRING WITH YOU ON DAY OF APPOINTMENT)

NAME..... DATE OF BIRTH.....

Please tick the appropriate box	Yes	No
Have you lost any height?		
Have you had back surgery requiring metal work?		
Have you had a hip replacement?		
Have you had any fractures?		
To your knowledge, have either of your parents ever fractured their hip?		
Have you ever been prescribed steroids?		
Do you have rheumatoid arthritis?		
Is there a family history of osteoporosis?		
Do you smoke?		
Do you drink more than 3 units of alcohol per day?		
Are you/could you be pregnant?		
Have you had the menopause?		
Have you had a hysterectomy?		
Are you taking HRT?		

Current Questionnaire:

Golden Jubilee National Hospital
Agamemnon Street
Clydebank G81 4DY
National Waiting Times Centre Special Health Board



PLEASE ATTACH CHI
BARCODE LABEL HERE

	kg
	cm

BONE DENSITY CHECKLIST

PLEASE COMPLETE BELOW AS WELL AS YOU CAN AND BRING WITH YOU ON THE DAY OF APPOINTMENT. (This is to assess risk factors affecting your bone density)

- Have you lost height? Yes ☐ No ☐ If so, how much?
- How many times have you fallen in the last 6 months?
- As an adult have you had any broken bones/fractures?

	Y/N	Age at time of fracture		Y/N	Age at time of fracture
Hip or Femur			Humerus (upper arm)		
Lower leg or Ankle			Rib		
Spine			Hand or Foot		
Pelvis			Other (please specify)		
Wrist or Forearm					

- Family History of Osteoporosis

	Yes	No	Do not know
a) Did your mother/father ever break their hip?			
b) Did your mother, father, brother or sister develop obvious curvature of the spine as they got older?			
c) Did your mother or father or brother or sister lose significant height as they got older?			
d) Were your mother or father or brother or sister ever diagnosed as having osteoporosis?			

- Do you have any of the following? Please tick all that apply.

Asthma		Kidney stones	
Rheumatoid Arthritis		Blood clots	
Celiac disease		Swallowing problems	
Inflammatory bowel disease		Breast cancer	
Ulcerative colitis		Diabetes	
Over active thyroid		Kidney Disease	
Chronic liver disease		Epilepsy	
Please list any other health problems:			

- Do you smoke? Yes ☐ No ☐ How Much.....
Have you ever smoked in the last 5 years? Yes ☐ No ☐
- Do you drink more than 3 units of alcohol per day? Yes ☐ No ☐

- Dairy produce:

- How much milk do you have per day?
- How many small tubs of yoghurt do you eat per week?

- Do you exercise regularly? Yes ☐ No ☐

- What kind of exercise?
- How often?

- Medication

Are you taking or have you ever taken any treatments that can strengthen bones. Please tick all that apply.

	I take this now	Date Started	I was on this in the past	Date Stopped
Alendronic Acid or Fosamax				
Risedronate or Actonel				
Zoledronic Acid or Actasta				
Denosumab or Prolia				
Ibandronate or Bonviva				
HRT				
Calcium and/or vitamin D				
Other				

Are you taking or have you ever taken any treatments that can affect bone strength. Please tick all that apply.

	Current Dose	I take this now	Date Started	I was on this in the past	Date Stopped
Steroids (eg Prednisolone)					
Anastrozole or Arimidex					
Letrozole or Femara					
Exemestane or Aromasin					
Zoladex					
Finasteride or Cyproterone					
Dopo-Provera					
Anti-epileptics					

Please list all other tablets/inhalers or medications you are currently taking, or bring a list with you:

This last section is for female patients only:

- Is there any chance you could be pregnant? Yes ☐ No ☐
- How old were you when your periods started?
- What age were you when your periods stopped?
- Have you had a hysterectomy? Yes ☐ No ☐
If so, when? Were your ovaries removed? Yes ☐ No ☐
- Except for pregnancy or menopause, have your periods ever stopped for more than 6 months? Yes ☐ No ☐

DXA Reporting For Clinicians:

My experience

- Reporting Radiographer
- Stand alone module
- Preparation for reporting DXA scans
- Started scanning in the September before taking the course as preparation.
- Questionnaire
- Vertebral Fracture Assessment

Report:

“Semi automated dexa report using the clinical history provided. Please see attached fracture risk results.”

Example Scan

Name: _____

Patient ID: _____

Identifier 2: _____

Postal Code: _____

Sex: Female

Ethnicity: White

Height: 155.4 cm

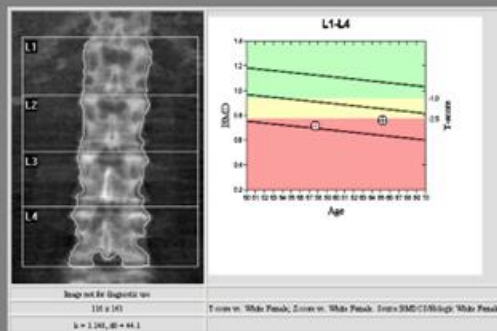
Weight: 53.0 kg

DOB: 20.08.2018

Age: 65

Menopausal Age: _____

Referring Physician: _____



Scan Information

Scan Date:	20 August 2018 - A08201804
Scan Type:	a Lumbar Spine
Analysis Date:	20.08.2018 14:23
Analysis Protocol:	Spine
Report Date:	20.08.2018 14:24
Institution:	
Operator:	
Model:	Discovery W (S083820)
Comment:	
Software version:	13.4.2

Results Summary:

Region	Area[cm ²]	BMC[g]	BMD[g/cm ³]	T-score	PR (Peak Reference)	Z-score	AM (Age Matched)
L1	15.33	11.03	0.719	-2.5	73	-0.9	88
L2	14.62	11.30	0.773	-2.3	75	-0.6	92
L3	14.65	11.88	0.811	-2.5	75	-0.6	92
L4	16.58	12.36	0.745	-2.9	70	-1.0	88
Total	61.19	46.56	0.761	-2.6	73	-0.8	89

Total BMD CV 1.0%, ACF = 1.033, BCF = 1.016, TH = 6.174

Results History: L1-L4

Scan Date	Age	BMD	T-score	BMD Change vs Baseline	BMD Change vs Previous
20.08.2018	65	0.761	-2.6	6.5%	6.5%
10.02.2011	57	0.714	-3.0		

Fracture Risk: High, WHO Classification: Osteoporosis
* Denotes significance at 95% confidence level, LSC is 0.022 g/cm³

Comment:

HOLOGIC®

Name: _____

Patient ID: _____

Identifier 2: _____

Postal Code: _____

Sex: Female

Ethnicity: White

Height: 155.4 cm

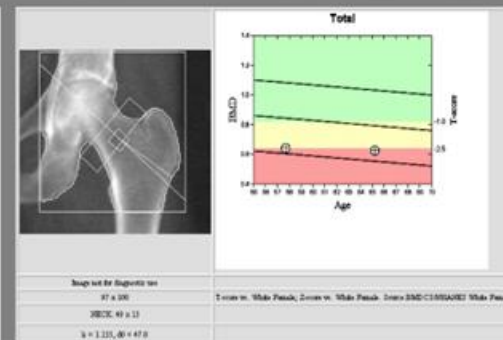
Weight: 53.0 kg

DOB: 20.08.2018

Age: 65

Menopausal Age: _____

Referring Physician: _____



Scan Information

Scan Date:	20 August 2018 - A08201804
Scan Type:	a Left Hip
Analysis Date:	20.08.2018 14:24
Analysis Protocol:	Hip
Report Date:	20.08.2018 14:24
Institution:	
Operator:	
Model:	Discovery W (S083820)
Comment:	
Software version:	13.4.2

Results Summary:

Region	Area[cm ²]	BMC[g]	BMD[g/cm ³]	T-score	PR (Peak Reference)	Z-score	AM (Age Matched)
Neck	4.58	2.79	0.609	-2.2	72	-0.6	90
Total	27.51	17.18	0.624	-2.6	66	-1.4	79

Total BMD CV 1.0%, ACF = 1.033, BCF = 1.016, TH = 5.289

Results History:

Scan Date	Age	BMD	T-score	BMD Change vs Baseline	BMD Change vs Previous
20.08.2018	65	0.624	-2.6	-2.7%	-2.7%
10.02.2011	57	0.642	-2.5		

WHO Classification: Osteoporosis
* Denotes significance at 95% confidence level, LSC is 0.027 g/cm³

Comment:

HOLOGIC®

FRAX® 10-year Fracture Risk Assessment Tool	
10-year Fracture Risk ¹	
Major Osteoporotic Fracture	16%
Hip Fracture	3.1%
Reported Risk Factors: UK, Neck BMD=0.609, BMI=21.9, previous fracture, secondary osteoporosis	

¹ FRAX® Version 3.00. Fracture probability calculated for an untreated patient. Fracture probability may be lower if the patient has received treatment.

Patient details: 89

Dob Age 65 Sex Female Ethnicity White Height: 155.4cm Weight: 53.0kg BMI: 21.9

Referral source: GP

Reason for referral: Osteoporosis. Started Residronate 2012. Follow up DXA required. ? Osteoporosis

Scan results (the hip or spine site with the lowest T-score is used for diagnostic purposes)

Scan Date: 20/08/2018	BMD (g/cm ²)	T-score	Z-score
Lumbar spine (L1- L4)	0.761	-2.6	-0.8
Neck of femur (L)	0.609	-2.2	-0.6
Total hip (L):	0.624	-2.6	-1.4

BMD Interpretation – The site with the lowest T-Score is used for diagnostic purposes and classified according to the World Health Organisation criteria.

WHO classification: Osteoporosis

Scan Interpretation: Imaging of the left hip and lumbar spine is technically correct and vertebral body height appears maintained. Bone mineral density at the spine is 0.761g/cm², giving a T-score of -2.6, which shows an increase of 6.5% since the previous scan done 10/07/2011. The neck of femur shows a bone mineral density of 0.609g/cm², T-score -2.2, and the total hip bone mineral density is 0.624g/cm², T-Score -2.6 giving a result of osteoporosis which shows a reduction of -2.7% since the previous scan.

10 year absolute fracture risk as calculated by FRAX® (<http://www.shef.ac.uk/FRAX/>)

Major osteoporotic fracture 16% Hip fracture 3.1%

Reported Risk factors for osteoporosis and fracture/falls:

Fractured rib 7 years ago.

Relevant medical history:

Underactive thyroid, high cholesterol, vitamin B12 deficiency.

Relevant Medication:

Thyroxine 50mg, Simvastatin 40mg, Hydroxocobalamin, Risedronate Sodium.

Recommendations:

Consider a break in treatment of risedronate sodium as this has now been taken for 7 years. It may be useful to look at thyroid function with a view to reassessing thyroxine dose to ensure this is not causing her osteoporosis. Take calcium (1000-1200mg) and vitamin D3 800 iu daily.

Lifestyle Recommendations:

Promote good diet and exercise aimed at achieving good bone mineralisation.

Follow Up:

An endocrine referral may be required to review her thyroid function.
Suggest follow up to monitor bone levels with a scan in 2 years.

Reported according to Sign Guidelines - 142

Reporter

Name: Helen Marshall, Reporting Radiographer RA26929

Email: Helen.Marshall@gjnh.scot.nhs.uk

Date: 28/09/2018

Sample
report
from
the
course.

Patient details

Age: [<>] Sex: [<>] Ethnicity: [<>] Height: [<>]cm Weight: [<>]kg BMI:[<>]

Reason for referral: [<>]

Scan results (the hip or spine site with the lowest T-score is used for diagnostic purposes)

BMD (g/cm ²)	T-score	Z-score	
Lumbar spine (L1- L4)	[<>]	[<>]	[<>]
Neck of femur (L)	[<>]	[<>]	[<>]
Total hip (L):	[<>]	[<>]	

BMD Interpretation – The site with the lowest T-Score is used for diagnostic purposes and classified according to the World Health Organisation criteria.

WHO classification: [<>]**Scan Interpretation: [<>]**

10 year absolute fracture risk as calculated by FRAX® (<http://www.shef.ac.uk/FRAX/>)

Major osteoporotic fracture [<>]

Hip fracture [<>]

Relevant medical history: [<>]**Recommendations: [<>]****Lifestyle Recommendations: [<>]****Follow Up: [<>]**

Reported according to Sign Guidelines – 142

Reporter

Name: Helen Marshall, Reporting Radiographer RA26929

Email: Helen.Marshall@gjnh.scot.nhs.uk

Moving Forward:

- Pre-Reporting Audit - 30 cases
- Has helped to refine the process
- Refine the reporting Template
- Physicians viewer
- New Scanner
- Just need to get quicker at reporting!

Web Addresses

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<https://www.derby.ac.uk/postgraduate/radiography-courses/bone-densitometry-reporting-pg-cert/>

www.derby.ac.uk

Any Questions?