

# Evaluation of the GP Direct Access DXA Scanning Service

**HSE Dublin-mid Leinster Primary Care**

**Rosina Ghuffar, Catherine Vahey, Ailís ní Riain**  
Irish College of General Practitioners

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# Chapter 1

## Background

The HSE recognises the high levels of morbidity and mortality caused by fractures, particularly of the femur, in older persons and that a multifaceted approach is required to address this, including falls prevention programmes. The detection and management of osteoporosis and osteopaenia is a crucial element of this multifaceted approach and requires DXA scanning. Access to DXA scans is variable around Ireland at present. In 2005, funding was allocated for Primary Care Strategy initiatives including access to diagnostics for GPs and HSE Primary Care in the former East Coast Area decided to focus on improving access to DXA scanning by supporting direct GP access.

Each of the three acute hospitals in the area was offered funding to purchase DXA machines and associated hardware / software, in order to provide this new service from within their existing staffing resources. All three hospitals welcomed the initiative and applied for the equipment funding.

The objectives of this project were:

- to provide General Practitioners in the area with direct access to public bone density scanning, with clear referral protocols to ensure appropriate referrals
- to enable early imaging for patient's diagnosis and management
- to assist General Practitioners in the continued management of their patients in the primary care setting
- to facilitate greater integration between hospital and primary care services
- to assist in long-term prevention of osteoporosis and fracture risk.

### National Policy Framework

The report of the *National Taskforce on Manpower Planning* (Hanly, 2003) recommended increased provision of services in primary care, increased elective and ambulatory care in local hospitals and the enhancement of diagnostic services in local hospitals. The former HSE East Coast Area was designated as a pilot site for the implementation of the Hanly Report.

This DXA service aims to address all four targets of the Health Strategy – quality, equity, people centeredness and accountability. 'Quality and Fairness' recommends improved access to hospital services (Q&F 43), greater flexibility and specific appointment times (Q&F 46), improvement of outpatient departments (Q&F 85) and the enhancement of diagnostic services for GPs and hospitals (Q&F 87). The *Primary Care Strategy*, 'A New Direction' recommends greater integration between primary and secondary care via local arrangements for referral, care pathways, shared care, and access to diagnostic services (Action 10).

This initiative also addresses the HSE Transformation Priorities:

**Programme one:** Develop integrated services across all stages of the care journey

- develop simplified patient and client journey processes
- develop shared care between primary care and hospital services.

**Programme two:** Configure Primary, Community and Continuing Care services to deliver optimal and cost effective results.

The need for nationally agreed guidance on screening, detection and management of osteoporosis and osteopaenia is widely accepted. Factors that make this particularly important at this time in Ireland are the ageing population profile, the increasing numbers of DXA scanners, the centrality of primary care in the healthcare reforms and the drive towards equitable healthcare across the country. The establishment of this project provides a unique opportunity to develop a national model for this service.

## The project

Following consultation with GPs and hospitals in the area, the Primary Care Unit of the former HSE East Coast Area provided funding in 2006 for three DXA scanning machines, each to be sited at one of the three acute hospitals in its catchment area (St Vincent's University Hospital, St Michael's Hospital, Dun Laoghaire and St Columcille's Hospital, Loughlinstown) to provide direct access to DXA scans for all patients in the catchment area by GP referral. This service was to be free to the patient. These machines were funded under the Primary Care Strategy and were planned to be operational by 1<sup>st</sup> January 2007. Referral guidelines have been developed by the individual hospitals for referral to this service. Specific referral forms have also been developed to capture clinical data of those attending.

All 276 GPs in the three Local Health Offices were eligible to refer for this service.

<b>GPs in catchment area</b>			
<b>LHO</b>	<b>GMS</b>	<b>Non-GMS</b>	<b>Total</b>
Dun Laoghaire (St Michael's Hospital)	63	32	<b>95</b>
Dublin Southeast (St Vincent's Hospital)	56	49	<b>105</b>
Wicklow (St Columcille's Hospital)	51	25	<b>76</b>
<b>Total</b>	<b>170</b>	<b>106</b>	<b>276</b>

Although the original funding was allocated specifically for local GP referrals, it was agreed that individual hospitals could use the DXA machines for additional sessions for other referrals such as consultant referrals or GP referrals from outside the catchment area. However, this was dependent on hospital resources and on the basis that it did not impact on the waiting times and dedicated appointments for local GP referrals.

## The case for evaluation

This innovative initiative has long been requested by patients, GPs and hospital staff. Initial reaction from GPs has been positive. The effectiveness of the initiative requires to be proven and a structured, planned evaluation was required. In addition to assessing effectiveness, this evaluation needed to identify areas where modification of the constituent components is necessary. The initiative, with its evaluation, can then be presented as a model of good practice to encourage dissemination of the approach.

The Women's Health Programme at the Irish College of General Practitioners was invited to submit a proposal to undertake this evaluation and agreement was reached that it would be undertaken.

## The Evaluation

This evaluation focuses on six months activity (January to June 2007). It is multifaceted, to capture the entirety of the experience. It addresses structures, processes and outcomes, in so far as this is possible. This in turn required a range of methods, including analysis of data collected, a survey of the hospital staff involved, survey of GPs' experience and measures of patient satisfaction. We had also intended to assess the impact of the service on prevention and management of osteoporosis and long-term fracture prevention but the evaluation is too early to allow this to be effectively undertaken and will need to be addressed in later evaluations. This evaluation also examines the usefulness or need for change in the referral guidelines and the referral forms.

The objectives of the evaluation were to:

1. Seek proof of effectiveness
2. Identify areas for improvement
3. Suggest a strategy for more widespread dissemination of this model
4. Establish whether there is a need for guidance for GPs on treatment of osteopaenia/osteoporosis in the primary care setting
5. Make recommendations regarding the feasibility of measurement of long-term impact of this model of service.

## Components of the evaluation

1. Audit of DXA scans performed (to include numbers, demographics, concordance with referral guidelines, positive detection rates)
2. Review of hospital-based processes (referral process from GPs, to include waiting time from referral to scan, format of report to GPs including treatment recommended)
3. Measures of patient satisfaction
4. Health care professional satisfaction (to include radiographers, radiologists, GPs, endocrinologists)
5. Assessment of impact of DXA scans on management of patients
6. Health economics commentary.

Although the DXA scanners were also used for some additional referrals from other sources, the scope of the audit was to review GP referrals only.

## Governance

The evaluation was driven by a multidisciplinary, multi-sectoral **Expert Group** and the evaluation task was undertaken by two designated Project Co-ordinators at the Irish College of General Practitioners.

The Expert Group was a professional advisory and steering group whose membership is listed at Appendix A. Their primary function was to provide guidance and co-ordination for the Project Co-ordinators. Their input was provided electronically throughout the project and a meeting was held in December 2007 to agree this report.

Day-to-day management of the Project Co-ordinators was the responsibility of the Director of the Women's Health Programme at the ICGP.

## Phase 1

The overall aim of this phase was to ensure the processes were in place to enable the evaluation to be undertaken. The evaluation tools were developed; current base-line information being collected at the hospitals was reviewed and key personnel were advised about the data required for the evaluation.

Ethical approval was secured from the ICGP Research Ethics Committee.

## Phase 2

Evaluation data was collected from the hospitals, patients and healthcare professionals. Quantitative data from the questionnaires and hospital activity information was statistically analysed. Qualitative data from open-ended questionnaire items and interviews was analysed thematically. The findings were presented in a draft report which was circulated to the Expert Group. The final report reflects their input.

## **Chapter 2**

### **Description of GP direct access DXA Service in the Hospitals**

The brief was to review the GP DXA service provided at the three hospitals in the catchment area, St. Vincent's University Hospital, St Michael's Hospital Dun Laoghaire and St Columcille's Hospital Loughlinstown. St Vincent's University Hospital is not included in this evaluation as the service was not running there at the time the audit took place.

#### **Initiating the DXA service**

A letter was circulated by the HSE Primary Care Unit to all GPs in the relevant catchment areas introducing the service and providing a guideline on osteoporosis management (Appendix B) and details of the referral mechanism. Referral guidelines were developed independently by the hospitals (Appendix C).

Each hospital supplied their own referral forms to GPs in their catchment area. Both hospitals have similar referral forms identifying patients' demographic details; previous surgery; history of scans; clinical information – reason(s) for the scan; medications and history of other tests and scans. The referral forms offer GPs the option of either the report from the scan (non-interpretative) or with additional information and management advice (interpretative). Both hospitals also provided Osteoporosis Self-Assessment forms for patients to complete while waiting for their scan.

#### **Data collection**

One of the Project Co-ordinators (RG) reviewed the systems of data collection for the GP direct access DXA service at the two hospitals in January 2007 and informed them of the data that would be required at the end of the six month data collection period (January – June 2007). The data required included total number of DXA scans completed, the proportion that were GP referrals, the results of bone mineral density for each patient, the waiting time from referral to appointment, the sources of referral and the number of appointments being offered each week.

The IT systems in both hospitals could collect some of the required data but not all, meaning that some data had to be collected manually.

#### **The functioning of the DXA service**

At the outset, a team of three radiographers were responsible for carrying out scans in St Michael's Hospital; a fourth radiographer was added to the team during the summer of 2007. The radiographers received training in DXA scanning from a consultant radiologist from St Vincent's University Hospital. The radiographers report that none of them are completely trained in this type of scanning. A DXA training pathway has since been put in place in conjunction with St Vincent's University Hospital and it is hoped that radiographers will attend additional certification training in the UK. DXA scans are carried out on any of four days a week in the X-ray unit, intermittent with other radiological examinations.

One radiographer with previous experience of DXA scanning has sole responsibility for the DXA service in St Columcille's Hospital. She has received formal training in DXA scanning. All DXA scans are carried out during three dedicated sessions over a day and a half per week in this hospital.

The two hospitals were broadly similar in their referral processes and the day-to-day functioning of the service. Table 2.1 details how the service is run in each hospital from the initial referral process to the patient's care following their scan.

**Table 2.1 Operation of the GP DXA service (January 2007)**

	<b>St Michael's Hospital</b>	<b>St Columcille's Hospital</b>
<b>GP referral</b>	GP faxes or posts the referral form and patient can also phone the DXA service for an appointment following GP referral. GP provides all the relevant information about the DXA scan including an osteoporosis self-assessment form.	GP faxes or posts the referral form. The patient can also phone the DXA service for an appointment following GP referral. There is no expectation about the level of information the GP provides to the patient at this stage.
<b>DXA service</b>	Receptionist contacts the patient to arrange appointment at a convenient time.	The senior radiographer posts out the relevant information about the scan itself and appointment detail.
<b>Scan day</b>	On the day of scan the patient reports to the reception desk. If the self-assessment form has not been filled in, the patient is asked to complete it in the waiting room. The patient is also given an information leaflet about DXA scanning and osteoporosis. During the evaluation period, a Patient Satisfaction Questionnaire (PSQ) was also distributed.	On the day of scan the patient reports to the reception desk. The patients complete the self-assessment form in the waiting room. During the evaluation period, a Patient Satisfaction Questionnaire (PSQ) was also distributed.
<b>Feedback</b>	The patient is given minimal feedback on the scan day but is told that the report will be sent out to their GP after three days. The report is written by a radiographer and reviewed by the consultant radiologist. On the referral form, the GP may opt for an interpretative result. Patients referred to the endocrinologist are also offered repeat scans after two years.	The senior radiographer provides feedback on the scan day with recommendations and the patient is told that the report will be with their GP after seven days. The radiographer writes the report and has it checked and signed by the consultant radiologist. The same format of report is used for all patients. An interpretive report is provided to GPs on request.
<b>Waiting time</b>	Four months	Three months
<b>Referral to Endocrinologist</b>	Consultant radiologist is responsible for referring the patient to the endocrinologist, based on a protocol.	Senior radiographer is responsible for referring the patient to the endocrinologist, based on a protocol.
<b>Current audit</b>	No formal audit structure. Six monthly statistics submitted to HSE Primary Care Unit.	No formal audit structure. Six monthly statistics submitted to HSE Primary Care Unit.

The principal differences in the processes relate to the role and responsibilities assigned to staff in both hospitals. In St Michael's Hospital, a team of staff is responsible for the service. In St Columcille's Hospital, the senior radiographer assumes most responsibility and is involved at all stages of the service.

## Chapter 3 Activity in the Hospitals

During the six month evaluation period (January to June 2007), 938 DXA scans in total were carried out in the two hospitals, 350 in St Michael's Hospital and 588 in St Columcille's Hospital (Table 3.1). While the majority of patients overall were direct GP referrals (83%), a difference was observed between the two centres (87% at St Columcille's and 77% at St Michael's). On average, St Michael's were undertaking between 4 and 5 scans each week referred from other sources during the six month evaluation period while the figure for St Columcille's was between 2 and 3.

**Table 3.1 Source of referral for DXA scan January – June 2007**

	<b>Total number of DXA scans</b>	<b>GP- referred</b>	<b>Other</b>
St Michael's	350 (100%)	270 (77%)	80 (23%)
St Columcille's	588 (100%)	513 (87%)	75 (13%)
<b>Total</b>	<b>938 (100%)</b>	<b>783 (83%)</b>	<b>155 (17%)</b>

The principal source of referrals for scans other than GPs is from consultants within the hospitals. As this report is concerned with GP referred patients only, the characteristics of those patients are detailed in Table 3.2.

**Table 3.2 Characteristics of GP referral patients scanned**

	<b>Male</b>	<b>Female</b>	<b>Age range</b>	<b>Mean age</b>
St Michael's	6% (20)	94% (330)	27 – 82 years	62 years
St Columcille's	8% (48)	92% (540)	25 – 95 years	70 years
<b>Total</b>	<b>7% (68)</b>	<b>93% (870)</b>	<b>25 – 95 years</b>	<b>68 years</b>

Table 3.3 contains the bone mineral density results obtained for GP referred patients in both hospitals. This represents a high positive detection rate with 80% of the scans showing either osteoporosis or osteopaenia. These show a different pattern for patients from the two hospitals. Patients scanned at St Columcille's were more likely to have positive results for osteopaenia and osteoporosis (86%) than patients that attended St Michael's (68%). Consequently, patients from St Michael's were more than twice as likely to have normal results from their scans. The differing distribution of results for both hospitals was statistically significant ( $p < 0.001$ ).

**Table 3.3 Results of bone mineral density for GP referrals**

	<b>Normal bone density T <math>\geq</math> -1.0</b>	<b>Osteopaenia T &lt; -1.0 and &gt; -2.5</b>	<b>Osteoporosis T <math>\leq</math> -2.5</b>
St Michael's (270 scans)	32% (86)	53% (143)	15% (41)
St Columcille's (513 scans)	14% (72)	40% (206)	46% (235)
<b>Total (783 scans)</b>	<b>20% (158)</b>	<b>45% (349)</b>	<b>35% (276)</b>

## **Waiting times for appointments for GP referred patients**

### St Michael's Hospital

At the end of the evaluation period in June 2007, the reported waiting time for a GP appointment at St Michael's Hospital was four months, unchanged since the reported waiting time in January. The hospital was scanning approximately ten GP referred patients per week with scans taking place intermittently on any of four days of the week.

Staff reported that the service experienced problems with low staffing during the summer months and there was also a notable increase in the number of patients being referred by GPs. As a consequence the waiting times for appointments rose to five months. In November, these problems appeared to have been addressed to some extent. The radiographers reported feeling more familiar with the DXA scanning process, a new appointments system had been put in place and in general there seemed to be more cohesion and organisation regarding the DXA service. In the interest of reducing waiting length and to deal with the backlog of appointments, more time was being made available for the service.

At the time of this report, 28 DXA appointment slots, lasting 30 minutes each, were being allocated for DXA scans each week, the majority (in excess of 90%) being offered to GP referred patients. Staff in the service were optimistic about reducing the waiting time back to three or four months early in 2008.

### St Columcille's Hospital

At the end of the evaluation period in June, the reported waiting time for an appointment at St Columcille's Hospital was three months, unchanged since January. The hospital was providing three sessions each week for GP referred patients. A session lasted half a day. The number of patient scans being completed in these sessions was 18, averaging six scans per session.

At the time of this report the waiting time for an appointment was ten weeks. The hospital was still offering three scanning sessions per week and completing an average of 20 scans per week within these sessions for GP referred patients. The radiographer reported that scans were now being completed in 15-20 minutes rather than the previously reported 30 minutes, accounting for the slight increase in number of total scans each week.

## Chapter 4 The Patient Experience

Patient satisfaction is an important measure in health services research. Research has shown that higher patient satisfaction is related to a better compliance with advice on treatment. Furthermore, patient satisfaction surveys help to identify ways to improve health services, resulting in better care and happier patients. Such surveys demonstrate to the community and staff that we are interested in quality and looking for ways to improve. Evaluation of any new service requires evaluation by the users of the service, in this case patients having DXA scans on direct referral from their GP.

We decided to use a patient satisfaction questionnaire as the principal method of exploring the patient experience. There are many compelling reasons for choosing the questionnaire as a method to measure patient's satisfaction. Using questionnaires is a relatively easy and inexpensive method to collect data. Questionnaires can be self-administered and therefore provide an opportunity to collect data on a range of specific aspects of an experience or service from a relatively large number of service users. The addition of open questions allows for the collection of some qualitative data.

### The Patient Satisfaction Questionnaire (PSQ)

A review of existing patient satisfaction questionnaires failed to identify one that was suitable for use in this specific setting. Accordingly a new questionnaire was developed based on existing questionnaires. The Expert Group provided input into both content and presentation of the questionnaire. The questionnaire is included at Appendix D. The questionnaire was distributed on the day of the DXA scan and assessed the patient's satisfaction from the GP referral day to the scanning day. It was accompanied by an explanatory letter.

Each hospital was provided with 150 questionnaires and a reply box for collection of the completed questionnaires. Patients were also supplied with a FREEPOST envelope to enable them to post back the completed questionnaire if they preferred. The radiographers in each hospital were asked to distribute the questionnaires to all GP referred patients and to stress the importance to them, of their feedback in making the service effective. Of the 300 questionnaires circulated, a total of 156 were returned within the three month deadline, 93 from St Columcille's Hospital and 63 from St Michael's Hospital (Table 4.1). It is likely that initial difficulty in distributing the questionnaires at St Michael's accounts for the differing response rates. An additional 20 completed questionnaires were returned after the closing date and were excluded from the analysis.

**Table 4.1 Characteristics of the PSQ respondents**

	St Michael's	St Columcille's	Total
<b>Questionnaires supplied</b>	150	150	300
<b>Questionnaires returned</b>	63 (42%)	93 (62%)	156 (52%)
<b>Gender of respondents</b>	60 female; 3 male	90 female; 3 male	150 female; 6 male
<b>Age range</b>	34 – 82 years	26 - 87 years	26 - 87 years
<b>Mean age</b>	61 years	60 years	60.4 years

### The Patient Interviews

Qualitative research provides the opportunity to explore research questions in greater depth. Interviews, some time after an intervention and completion of a questionnaire also allows respondents to provide information based on further reflection. Additionally, in this specific instance, some patients may have received advice, recommendations or further treatment from their GP subsequent to completion of the questionnaire. Therefore we decided to conduct a follow-up telephone interview with a randomised selection of responders to the questionnaire. Accordingly we asked those completing the questionnaire to indicate if they were willing to be included in this optional follow up. If so, they were asked to provide their name and telephone number. There was a 48% (75/156) uptake of this offer.

Ten patients (five from each of the hospitals) were randomly selected from those who gave consent to participate in the telephone interview. Nine semi-structured interviews lasting 15 minutes were conducted as one of the selected patients was not contactable within the timeframe. Notes were taken during each interview and written up in more detail immediately thereafter. Responses from all interviewed respondents were collated and relevant findings are included with the questionnaire analysis in the following report.

## The GP Referral

In the patient satisfaction questionnaire, the referral process by the GP was examined with the focus on the explanation and information provided at this visit (Table 4.2).

**Table 4.2 Patient satisfaction with the referral by the GP for DXA scan**

Rating Scale Percentage (number)	Dissatisfied	Somewhat dissatisfied	Neutral	Somewhat satisfied	Satisfied
<b>Satisfaction with the GP's explanation of the reason for the DXA scan</b>	3.2% (5)	2.7% (4)	8.3% (13)	14.1% (22)	65.4% (102)
<b>Satisfaction with GP provision of written information about osteoporosis</b>	18.6% (29)	11.3% (18)	35.9% (56)	7.7% (12)	26.3% (41)
<b>Satisfaction with being referred directly to DXA service by the GP</b>	1.9% (3)	2.1% (2)	3.2% (5)	10.3% (16)	86.7% (130)

The majority of the patients (65%) were satisfied with how well their GP explained the reason for the DXA scan to them, with less than 6% expressing any level of dissatisfaction. Patients were less satisfied with the amount of written information provided to them by their GP, with this aspect of the service receiving the highest ratings of dissatisfaction among patients. Many patients in fact commented on the questionnaire that no information about osteoporosis was provided and that they would have liked to receive such literature from their GP.

The vast majority of patients (87%) were satisfied with being directly referred to the DXA service by their GP. The five patients that expressed dissatisfaction were all also dissatisfied with their GP's explanation of the DXA scan. This indicates that dissatisfaction with direct referral likely reflects lack of information rather than a preference for another referral mechanism.

In the interviews, respondents were asked how they were referred for the DXA scan and asked about their experience of the referral process. The patient's GP recommended a referral for a DXA scan in seven of the nine cases. Recommendations were based on a range of clinical risk factors, with patients usually presenting with a combination of factors. After reading the osteopaenia/osteoporosis risk factor poster, one patient felt that she fitted the profile outlined and asked her GP to refer her for a scan. Another patient asked to be referred because of a family history of the condition. Of the nine patients interviewed, five had had a DXA scan previously. In most cases the patient's GP explained the scan to them at the time of referral. Eight of the nine patients interviewed said that they clearly understood the reason for their scan.

## Organisational Aspects of Care

In the patient satisfaction questionnaire, the organisational aspects of care within the hospital were assessed. These included scheduling (Table 4.3), physical environment and waiting times (Table 4.4).

**Table 4.3 Patient satisfaction with scheduling of the DXA scan**

Rating Scale Percentage (number)	Dissatisfied	Somewhat dissatisfied	Neutral	Somewhat satisfied	Satisfied
<b>Satisfaction with the appointment time given by the DXA service</b>	1.9% (3)	0.6% (1)	7.1% (11)	7.7% (12)	82.7% (129)
<b>Satisfaction with the provision of relevant information about the DXA scan from the DXA service prior to your appointment</b>	10.3% (16)	9% (14)	27% (42)	16% (25)	37.8% (59)
<b>Satisfaction with contacting the DXA service by phone</b>	2.6% (4)	2.6% (4)	24.4% (38)	16% (25)	54.5% (85)

The vast majority of patients (83%) felt that their appointment was at a convenient time. While 38% of respondents were satisfied with the information provided to them prior to their scan, the spread of responses to this question indicates varied levels of satisfaction, with almost 20% expressing some level of dissatisfaction. This is almost as high as patients' dissatisfaction with the level of information provided to them by their GPs, highlighting again an inadequacy in the information provided for patients about osteoporosis and the DXA service. In general, patients were satisfied with the phone contact with the hospitals.

**Table 4.4 Patient satisfaction with the physical environment and waiting times**

<b>Rating Scale Percentage (number)</b>	<b>Dissatisfied</b>	<b>Somewhat dissatisfied</b>	<b>Neutral</b>	<b>Somewhat satisfied</b>	<b>Satisfied</b>
<b>Satisfaction with the location of the DXA service</b>	0.6% (1)	0.6% (1)	7.1% (11)	13.5% (21)	78.2% (122)
<b>Satisfaction with the waiting time for DXA appointments</b>	5.1% (8)	5.8% (9)	21.8% (34)	19.2% (30)	48.1% (75)
<b>Satisfaction with the length of time spent in the waiting room before the scan</b>	2.6% (4)	1.3% (2)	9.6% (15)	13.5% (21)	73.1% (114)
<b>Satisfaction with the comfort and safety while waiting for the scan</b>	1.9% (3)	1.3% (2)	10.3% (16)	16% (25)	70.5% (110)

The majority of the patients (78%) felt that their appointment was held at a convenient place. Two-thirds of respondents were satisfied or somewhat satisfied with the length of time they had to wait between their referral and their DXA scan appointment. These satisfied cases commented on the questionnaire that they were happy with the waiting time and with the new service, particularly as it is a free service. The majority of the patients were satisfied with the length of time spent in the waiting room on the scanning day and felt that they were comfortable and safe while waiting for their scan.

Eight of the nine patients interviewed were waiting less than two months for their scan. All had shorter waiting times than the mean reported in Chapter 2 and were satisfied with the length of time they had to wait for an appointment. The interviewed patients universally reported having had a positive experience of the scan itself, with no physical discomfort and few negative feelings reported. Some stated that everything was explained clearly to them and that the staff were very good, with one patient commenting that the scanning procedure was much better than her previous DXA scan. The most common negative feeling reported was worry about results. One patient did comment that she felt better when the staff talked to her about the scanning process.

#### **Interaction with the Radiographers**

As the radiographer carrying out the DXA scan is the key healthcare professional that the patient encounters, patient satisfaction was explored in a number of dimensions (Table 4.5).

**Table 4.5 Interaction with the radiographers**

<b>Rating Scale Percentage (number)</b>	<b>Dissatisfied</b>	<b>Somewhat dissatisfied</b>	<b>Neutral</b>	<b>Somewhat satisfied</b>	<b>Satisfied</b>
<b>Satisfaction with how well the radiographer listened to concerns</b>	0.6% (1)	1.9% (3)	5.7% (9)	9% (14)	82.7% (129)
<b>Satisfaction with how well the Radiographer explained what (s)he was going to do</b>	0.6% (1)	2.6% (4)	5.1% (8)	7.1% (11)	84.6% (132)
<b>Satisfaction with the amount of time the radiographer spent with patients</b>	0.6% (1)	1.3% (2)	8.3% (13)	9% (14)	80.8% (126)
<b>Satisfaction with the advice received from the radiographer</b>	1.3% (2)	0.6% (1)	16% (25)	19.2% (30)	62.8% (98)

The vast majority of the patients were satisfied with the interaction with their radiographer. This includes how well the radiographer listened to their concerns, explained the procedure and the time spent with them. A very small number of patients expressed any dissatisfaction with the care they received from the radiographer.

The patients who were interviewed were asked about the feedback provided by the radiographer. The level of feedback disclosed at the scanning session differs in the hospitals. At St Columcille's Hospital patients are given their diagnosis, the stage the condition is at (in positive cases) and are provided with verbal advice as to how to treat it. At St Michael's Hospital patients are not given this information. Their scan reports are sent to the referring GPs and subsequent management is left to the GP. Although patients attending this hospital did not complain about a paucity of feedback, the radiographer in St Columcille's received higher satisfaction ratings, indicating that receiving results and advice at the time of the scan enhances the DXA service.

### Interactions with other staff

Respondents were asked to indicate their satisfaction with receptionist and other staff on three dimensions (Table 4.6).

**Table 4.6 Satisfaction with receptionist and other staff**

<b>Rating Scale Percentage (number)</b>	<b>Dissatisfied</b>	<b>Somewhat dissatisfied</b>	<b>Neutral</b>	<b>Somewhat satisfied</b>	<b>Satisfied</b>
<b>Satisfaction with the friendliness of the receptionist and other staff</b>	0.6% (1)	1.3% (2)	7.7% (12)	17.3% (27)	73.1% (114)
<b>Satisfaction with the helpfulness of the receptionist and other staff</b>	0.6% (1)	1.3% (2)	7.1% (11)	18% (28)	73.1% (114)
<b>Satisfaction with how well privacy was respected by the staff at the DXA service</b>	1.3% (2)	1.3% (2)	7.1% (11)	9% (14)	81.4% (127)

The majority of patients were satisfied with the friendliness and helpfulness of the receptionist and other staff and with the privacy they were accorded.

### Patient Suggestions and Recommendations

Patients were asked whether they would recommend the service to a friend and to describe what they liked best and least about the service. They were also asked to offer suggestions as to how the DXA service experience could be improved.

Of the 156 patients that completed the PSQ, 90% (140) said that they would recommend the DXA service to a friend or family member. Prevention of osteopaenia/osteoporosis and perceived importance of the scan for good health were the main reasons given by patients as to why they would recommend the service to others. Another reason was that that the scan was informative and put one's mind at rest.

The two aspects of the service that patients liked best and valued most were the friendliness and helpfulness of staff and the efficiency of the service in how it was delivered. Patients also valued the free availability and the convenient location of the service for them. A number of patients who attended the hospital that provides immediate feedback about results said that this was the aspect of the service they liked best.

The majority of patients (72%) stated that they had no complaints or reason to dislike the service. Eighteen patients (11.5%) disliked the length of time they had to wait for an appointment. This was the most common reason for dislike of the service. Four patients (2.5%) cited the length of time spent in the waiting room prior to the scan as a reason for dislike. No other reason was suggested by more than one patient.

Several positive comments were made by patients regarding the current functioning of the service and its effectiveness. Nevertheless, a number of suggestions were put forward by patients as to how the DXA service could be improved. The most common improvements suggested by patients that attended St Michael's Hospital were in relation to organisational factors, including the waiting area and privacy when providing personal information. The patients that attended St. Columcille's Hospital suggested reduced waiting times for appointments as an improvement that could be made to the service there. This was by far the most common suggestion made by patients from this hospital and a suggestion also proposed by patients from St. Michael's. More information about the service and about osteopaenia/osteoporosis was also suggested by patients in both hospitals as an aspect of the service in need of improvement. Patients felt that this information should be given in advance either by the GP or in the post from the DXA service.

## Conclusions from Patient Satisfaction Questionnaires

The PSQ results show that patients are very satisfied with the DXA service and its current functioning. The only aspect of the service that obtained a notable level of dissatisfaction, was the information provided by GPs and the hospitals about the DXA scan and osteoporosis.

### Follow up after the DXA scan

The nine patients who were interviewed in the follow up survey were asked how they obtained the results of their scan and about their level of understanding of the results. In one of the hospitals patients received their results by the radiographer on the day. Additionally, all patients interviewed were contacted by their referring GP who discussed the results and subsequent treatments with them. All patients reported that they were able to understand their result and the treatment implications, if any, for them. Patients with a previous diagnosis of osteoporosis or osteopaenia learned whether or not their condition had progressed; other patients received a diagnosis of osteopaenia; two patients did not receive a diagnosis but were recommended to take calcium tablets. All patients interviewed believed that the DXA scan was beneficial for them.

Patients were also asked to describe the changes they had made once they had received their results. Most patients were prescribed calcium tablets or medication for osteopaenia/osteoporosis and some patients were also advised to take exercise. One patient with a previous diagnosis of osteopaenia had no change made to her treatment. For all patients, it had been at least a month since their scan and all agreed that they had sustained the changes made to their treatment and their lifestyle. The patients seemed to understand their condition and the implications of their treatment. The predominant attitude among patients regarding their diagnosis was one of realism; all agreed that it was important to look after their bones and follow the treatment.

Interviewed patients were asked for an overall assessment of the service several weeks after they had availed of it. All were delighted that this service was available to them and made several positive comments, for example *"brilliant service"*. They appreciated that it was free and were happy to adhere to treatments. One patient felt that it was important for all women to have this scan. Some patients having a repeat scan were delighted to see that their osteoporosis had improved. In this way the scan acted as a very positive reinforcement, as it showed patients that their effort in adhering to their treatments had paid off for them, for example one patient's comment was:

*"...it was a very positive experience. I did the right things like exercise and good diet..."*

All of the patients agreed that they were committed to the treatment and in general they did not find the treatment too difficult to follow. No common barrier to the treatment of osteopaenia/osteoporosis was identified in the interviews. Clear individual differences existed, for example one patient thought that she might forget to take her medication and was trying to work it in to her daily routine, another patient, advised to walk by her GP, was afraid that the weather might prove to be a barrier for her.

Interviewed patients were also asked to reflect on the amount and quality of the information that had been provided about the DXA scan and also about the condition (osteopaenia/osteoporosis). Written information in the form of a leaflet about the DXA scan appeared to be available at the hospitals, although not all patients received this. Less written material seemed to be available about osteopaenia/osteoporosis. Information about the condition was usually conveyed verbally by either the radiographer or the GP. One patient said she received no specific information on this occasion. However, she said that she was already well informed as she had a number of DXA scans previously and had already known that she had osteopaenia. Although no patient complained explicitly that they had received insufficient information regarding the scan or the condition, most of them admitted that they sought out further information on the condition, usually via the internet.

Nearly all of the patients interviewed agreed that information about the DXA scan and osteopaenia/osteoporosis should be available at the GP's surgery. Posters in the waiting room were a popular suggestion as an effective means of communicating this information. Patients also suggested that increased public awareness would be very beneficial, for example, posters in public areas such as hospitals or information talks/leaflets presented to society groups such as active retirement groups. Overall patients felt that this information was very important and should be advertised to a greater extent.

### Summary of results from the patient interviews

- ⇒ GPs usually referred patients for the scan due to a combination of risk factors.
- ⇒ Patients waited an average of two months for a DXA scan appointment and were satisfied with this.
- ⇒ Patients experienced no undue physical discomfort when having their scan and reported having few negative feelings during it.
- ⇒ Feedback from the radiographer after the scan was welcomed.
- ⇒ Patients appreciated being offered the scan and reported understanding the results and their implications on their lifestyle.
- ⇒ Adherence and commitment to treatment among patients was excellent, according to patient reports.
- ⇒ Patients appeared to want better communication from their GP about osteopaenia/osteoporosis and the DXA scan, either in verbal or written format.
- ⇒ Patients also wanted greater availability of information about osteopaenia/osteoporosis and DXA scans in society in general.

## Chapter 5 The General Practitioner Experience

We designed a questionnaire to evaluate the GPs' experiences with the direct access DXA service (Appendix E). The HSE Primary Care Unit provided a listing of 276 General Practitioners within the catchment area of the three participating hospitals. The questionnaire was posted out to the 157 GPs that refer to the two hospitals where the service is available, accompanied by a letter of explanation and a FREEPOST envelope. Sixty GPs returned completed questionnaires, giving a 38% response rate. Female and male GPs were equally likely to complete the questionnaire. The GPs that replied were aged between 32 and 65 years with a mean age of 50 years. Of these GPs, 45% (27) were referring patients to St Columcille's Hospital, 25% (15) were referring patients to St Michael's Hospital, 18% (11) were referring patients to both hospitals and 12% (7) were referring to neither. Of the seven respondents who had not referred patients to either hospital, four reported that they hadn't heard of the direct access service, two were referring exclusively to private institutions and one gave no explanation.

The vast majority of respondents (92%) were aware of the direct access DXA service (Table 5.1). The participating hospitals were a particularly effective source of information with over half of the GPs hearing about the service in a letter of invitation from them. Some GPs had heard of the service from a number of sources.

**Table 5.1 GPs' source of notification of the direct access DXA service**

	<b>Percentage (Frequency)</b>
Invitation from the hospital	55% (33)
Invitation from the HSE	20% (12)
From another GP	12% (7)
From a patient	0
Other sources	15% (9)
Haven't heard about the service	8% (5)

*\*Total % greater than 100 as GPs could select more than one option*

Of the 55 GPs that recalled hearing of the direct access DXA service, 51 were referring patients to it. Of these, 61% (N = 31) had referred more than 10 patients during the six month evaluation period. Table 5.2 shows the breakdown of the number of patients referred by GPs.

**Table 5.2 Number of patients referred by GPs**

	<b>Percentage (Frequency)</b>
One patient	2% (1)
2-5 patients	21% (11)
6-9 patients	16% (8)
10 patients or more	61% (31)
<b>Total</b>	<b>100% (51)</b>

The majority of GPs (73%) were satisfied with this service. They are pleased with its current functioning and a number offered positive feedback in the free text section provided. For example:

*"I am very pleased with the service I have at my disposal".*  
*"Working well at present".*  
*"Has been very satisfactory".*

Those that were not satisfied listed lengthy waiting times between referrals and appointments and a lack of awareness of the existence of the service as reasons for dissatisfaction. One GP stated that the hospital set overly strict criteria for patients to satisfy in order to be eligible for this service.

Most GPs would use a combination of approaches in managing at-risk patients if the direct access DXA service was not available (Table 5.3). GPs would seek to access a DXA scan to assist in the management of the patient, including those GPs who indicated that they would manage the condition within the practice as they also referred patients to a private or endocrinology service.

**Table 5.3 Management strategies GPs would use for at-risk patients in the absence of the direct access DXA service**

	<b>Percentage (Frequency)</b>
Refer to a private service	82% (49)
Refer to an endocrinology service	30% (18)
Manage in the practice	22% (13)
Other	3% (2)

*\*Total % greater than 100 as GPs could select more than one option*

Forty nine of the 51 GPs that had referred patients to the direct access DXA service had received reports from the hospitals. All of these GPs considered the reports to be useful in the management of their patients' health.

**Table 5.4 DXA report useful to the GP in the management of the patient**

	All patients % (n)	Some patients % (n)	No patients % (n)
Clinical diagnosis	77% (37)	21% (10)	2% (1)
Lifestyle recommendations	54% (26)	42% (20)	4% (2)
Medical treatment recommendations	54% (26)	46% (22)	0
Specialist referral recommendations	25% (12)	35% (17)	40% (19)
Repeat scanning recommendations	56% (27)	38% (18)	6% (3)

No differences were identified in reported usefulness of DXA reports between the two hospitals, despite the differing formats of reports issuing from the two centres.

### **The referral process and recommendations**

A number of GPs made very positive comments about the referral process.

*"excellent service".*

*"referral process works well and response rate for patient appointments is quite rapid".*

Concern was expressed however about lengthy waiting times between referral and appointments. Respondents felt that a four month wait is too long. Others commented on the overly detailed referral forms.

*"Existing form is very detailed.....no extra details as time consuming".*

*"Less paperwork".*

and the wasting of resources caused by unnecessary referrals

*".....word of mouth has informed patients that it is a free service on demand with no criteria".*

Recommendations for improvement included reducing the amount of referral paperwork and prioritising referrals in more serious cases.

## Guidelines for referral and treatment

Several GPs made recommendations regarding referral for DXA scanning. These addressed referral criteria, the referral form and the need for referral guidelines.

### Referral criteria

A number of GPs suggested that specific criteria should be met in order to be eligible for referral for a DXA scan, including the patient's age, weight, family history of the condition, significant medical conditions e.g. steroid use and the description and duration of any treatment. Several GPs emphasised the need to be reminded to consider referral for DXA scan in patients who did not fit the profile of the typical osteopaenia/osteoporosis patient i.e. men and younger women with a risk profile. These comments underpin a need for specific guidelines that help to identify patients appropriate for the service.

### The referral form

GPs suggested that agreed referral criteria should be listed in the referral form as this would act as a useful reminder of the referral criteria. They advised that the form should be clear and concise.

### The need for referral guidelines

GPs expressed conflicting views about the need for referral guidelines. Some GPs felt that the procedures for referral contained in the invitation letter from the hospitals or pre-existing guidelines such as those developed by the Osteoporosis Society were sufficient. Others thought that specific referral guidelines were not actually needed as GPs are already equipped with sufficient knowledge about the condition and should be able to refer people at their discretion.

### Treatment guidelines

The majority of GPs (70%) did see a need for treatment guidelines for osteopaenia / osteoporosis in primary care.

## Suggestions for improvement of the direct access DXA service

GPs suggested patient access and waiting times as key areas for improvement. A system that prioritises patients into urgent or routine referral cases was recommended as a method to reduce waiting times for patients presenting with more serious risk of osteopaenia / osteoporosis. Another common suggestion was that the hospitals increase the hours of the service allocated to GP referred patients.

Several GPs felt that the reports of the DXA scans did not arrive back at the practice in a timely manner and that quicker feedback, for example via fax would improve the service. One commented that it should be possible to arrange for faxed reports, as faxed requests are already in place.

There were a few suggestions that increased public awareness about the service was needed, either through a public information campaign or leaflets. This is in contrast to the previously expressed opinion of one GP who felt that too much public awareness was leading to unnecessary referrals.

GPs' preferences for receiving information about new services generally were sought (Table 5.5).

**Table 5.5 GPs' preferences for sources of information about new services**

	<b>Percentage (Frequency)</b>
Letter	83% (50)
Email	43% (26)
Fax	17% (10)
ICGP website	15% (9)
Local faculty of ICGP	8% (5)

*\*Total % greater than 100 as GPs could select more than one option*

## **Report from HSE Primary Care Unit**

While it is relatively unusual for the Primary Care Unit to receive spontaneous positive feedback from GPs on service developments, there has been written and verbal feedback from GPs in the form of letters and phone calls saying how pleased they are that this new service has been established. There have also been calls from GPs outside the area enquiring if a similar service is available in their own areas.

## **Chapter 6**

### **The Hospital Health Professional Experience**

These evaluations are based on interviews with radiographers and radiologists from the two participating hospitals. It was not possible to carry out interviews with the consultant endocrinologists involved within the time frame of the evaluation. One endocrinologist provided information at a later date which has been included in this section.

#### **The experience with the GP direct access DXA service**

The radiographers and radiologists from both hospitals have found this service to be a very valuable addition to their respective radiology departments. They are happy to be able to provide such a useful service and have had very positive feedback from patients.

#### **The radiographers' and radiologists' level of involvement**

The two hospitals differ in the responsibilities assigned to the radiographers and the radiologists. In St Michael's Hospital a team of four radiographers is responsible for the scanning while the radiologist examines the scans and provides the reports for the GPs. In St. Columcille's Hospital the radiographer is involved at all stages of the service, from screening referral forms to writing the reports for the GP, with the radiologist examining the scans and the reports before the radiographer sends them to the GPs.

#### **Guidelines for referral**

All health professionals interviewed were aware of some set of guidelines for referring patients for DXA scans. Each hospital provided its own referral guidelines to the GPs (as described in Chapter 2 and detailed in Appendix C). The staff in both hospitals felt that appropriate referrals for DXA scans were being made, indicating that the referral guidelines being used in both hospitals are effective. The staff also thought that GPs are adhering to referral guidelines set out by them, although one respondent from St Michael's questioned the appropriateness of some GP referrals.

Overall, the staff in both radiology units are happy with the referral guidelines and referral process and offered no recommendations for improvement.

#### **Care after the DXA scan**

Patients at St Michael's are not given their results by the radiographer directly after the DXA scan, as per the protocol at that centre. Reports are written by the radiologist and sent to the referring GPs for them to make decisions regarding further referrals and treatment. GPs can also state on the referral form whether or not they would like an interpretive medical report for patients with positive scan results; in that event a second report is sent to the GP at a later date. For patients with osteoporosis who have an interpretive report a suggested date for a repeat DXA scan is made.

Patients at St Columcille's are given more detailed feedback from the radiographer following their scan. The radiographer is responsible for writing the reports which are checked by the radiologist before being sent to the referring GPs. As with the staff at St Michael's, the radiographer and radiologist from St Columcille's believe it is then the GP's decision whether a further referral to a specialist service is required. However, staff at St. Columcille's also said that direct referral to an endocrinology service was a possible option. In addition, they are willing to offer advice to the GP as to what referral options are suitable and available for their patients.

#### **How the service could be improved**

Staffing was identified as a problem in both hospitals. According to the radiographers and the radiologists, this is the aspect of the service most in need of improvement. With insufficient staff numbers and increasing numbers of referrals, there has been an increase in the length of waiting times for appointments. One radiographer stated that due to this some patients have requested private appointments. This defeats the purpose of the service whose aim is to provide direct, free access to DXA scanning.

Increasing the scanning time to enhance the quality of the service was also identified as a potential improvement, though this was judged unlikely to happen with current staffing levels and long waiting lists. It was also suggested that consideration should be given to prioritising the patients by need, to ensure that the most serious cases have their scans promptly.

### **Staff training and competency**

All of the health professionals interviewed felt that both they themselves and their colleagues are well trained and competent in their work. One interviewee from St Columcille's did reiterate the problem of few staff and asked that more staff be offered training in DXA scanning.

The senior radiographer at St Columcille's has a bone densitometry qualification. Staff from St Michael's said that they had received training from a doctor from St Vincent's University Hospital but that none of them were fully trained in DXA scanning procedures. A DXA training pathway has since been put in place in conjunction with St Vincent's University Hospital and it is hoped to attend additional certification training in the UK.

### **Support for the service**

While all staff felt that they are receiving sufficient support in running the new direct access service from their hospital and work colleagues, most felt that the HSE is not doing enough in terms of recruitment of additional staff. This includes radiography staff and administrative support staff.

### **Provision of information for patients**

There were mixed views on whether adequate provision of information is available for patients. Leaflets available from the radiology units on the DXA scan and osteopaenia/osteoporosis are thought to be beneficial for patients. However, the hospital staff believe that this information should be available from GP surgeries. Placing posters on waiting room walls was another suggestion of how the provision of information for patients could be improved.

### **Conclusion**

All of the health professionals interviewed believe that the DXA service is a very valuable part of care for patients and that it is working well in their hospital. Lack of additional staff and lack of staff training opportunities were the predominant issues that arose from these interviews. These are a problem for both hospitals. With the reported rising rate in referrals, this problem is likely to increase and threaten the quality of the direct access DXA service.

### **Summary of hospital health professionals' evaluations**

- ⇒ The health professionals providing the service in the hospitals are pleased with how it is functioning.
- ⇒ The hospitals differ in how they run certain aspects of the service; however, no unique problems have arisen for either hospital to suggest that changes are required in how they provide the service.
- ⇒ Lack of additional staff is a problem for both hospitals and one that may affect the future quality of the service.
- ⇒ Radiography staff identify the need for specific training in bone densitometry / DXA scanning.
- ⇒ HSE support in terms of additional staff would be welcomed.
- ⇒ The radiologists want GPs to provide information for patients about osteopaenia/osteoporosis and the DXA scan.

## Chapter 7

### Conclusions and Recommendations

DXA scans play a crucial role in the detection and management of osteoporosis and osteopaenia. Effective detection and management of these conditions will reduce the morbidity and mortality associated with fractures in the population. Access to DXA scanning is not equitable in Ireland with direct access on GP referral largely limited to those who attend private facilities for their scans. Most patients requiring publicly funded DXA scans have to be referred to a consultant clinic in the first instance resulting in undue delay for the patient and unnecessary appointments at outpatient clinics. This initiative provides direct access to DXA scans at their local hospitals for patients, without direct cost to them, on referral from their GP.

This evaluation of a GP direct access DXA service found a high positive detection rate, indicating appropriateness of the referral process; high levels of satisfaction with the new service amongst both patients and the healthcare professionals involved; and evidence that patients are receiving appropriate information and advice. It also identified some differences between the two participating centres.

1. HSE Primary Care Unit provided funding for three DXA scanners in 2006. Only two were operational during the evaluation period (Jan – June 2007). It has not been possible to establish the reason why the GP service at St. Vincent's University Hospital has not commenced.

#### **Recommendation 1**

HSE Primary Care should identify the reason for the delay in initiation of the service at St Vincent's University Hospital and agree a starting date or explore alternative arrangements for provision of this service for the GPs in this area.

2. Differences were identified in both procedures and outcomes between the two centres evaluated.

#### **Recommendation 2**

A local model of service should be agreed between the HSE and centres providing GP direct access for DXA scanning, in line with guidelines emerging from the recent national *"Strategy for the prevention of falls and fractures in an ageing population"*.

3. GP direct access DXA scanning is welcomed by all involved. Overall, patients and healthcare professionals expressed high levels of satisfaction with this service. 90% of patients would recommend the service to a friend or family member. 73% of GPs were satisfied with the current functioning of the service and 96% considered the DXA reports useful in management of referred patients.
4. 85% of responding GPs had referred patients to the service and three quarters of this group had already referred more than five patients to the service at the time of evaluation.
5. The GP direct access DXA service identified significant numbers of patients with osteoporosis and osteopaenia. Overall, 80% of those referred for DXA scans had a finding of osteoporosis or osteopaenia. Positive detection rates differed between the two centres. St Michael's Hospital detected osteoporosis in 15% of scans of GP referred patients and osteopaenia in 53%. St Columcille's Hospital detected osteoporosis in 46% of patients and osteopaenia in 40%.

It was not possible to establish the causes of the difference in detection rates. No significant differences were identified in terms of the profile of referring GPs. Patient demographics were not examined in detail. However, patients attending St Columcille's were significantly older (mean age 70 years, compared with mean age of 62 years for St Michael's patients). It is also possible that differences exist between the predominantly urban patients attending St Michael's and the predominantly rural patients attending St Columcille's. The differences between referral guidelines for the two centres may also be a contributing factor. International guidelines emphasise the importance of regular calibration and quality control mechanisms for DXA scanners. Assessment of these at the two centres was beyond the scope of this evaluation but may contribute to the differences in detection rate between the two centres. Differences in the training of radiographers were identified although their precise contribution to the differences in detection rates cannot be established.

**Recommendation 3**

Potential causes of the differences in positive detection rates should be explored in depth.

6. Each hospital designed its own referral guideline and referral form. Referral forms included essentially the same clinical data.
7. Healthcare professionals within each hospital were satisfied with the content of their own referral guideline and referral form and saw no need to make any changes.
8. GPs were ambivalent about the need for referral guidelines and detailed referral forms. While many recognised the need for such guidelines to ensure appropriate utilisation of the service, others believed that they were sufficiently knowledgeable without guidelines and were concerned to maintain flexibility in referral. GPs were broadly supportive of guidelines for treatment of osteoporosis and osteopaenia.

**Recommendation 4**

Notwithstanding findings 7 and 8, standardised referral guidelines, referral forms and treatment guidelines are needed to optimise appropriate referrals and utilisation of the service. This would also allow ongoing audit, including exploration of differing positive detection rates. This is of particular importance if national dissemination of this model is proposed. Such guidelines should not supersede clinical judgement. All concerned professional groups should be consulted in the drawing up of guidelines and the resulting guidelines should be disseminated to all healthcare professionals involved. This approach is consistent with the existing evidence that population-based screening is not recommended and is consistent with the recommended selective case finding approach based on clinical risk factors.

9. The reported waiting time for scans in both hospitals remained stable during the January – June 2007 evaluation period (four months and three months). At the time of this report (November 2007) the waiting times in St Michael's were again beginning to stabilise at three-four months after a peak of five months during the summer. In St Columcille's the waiting time at the time of report was ten weeks.
10. Patients were reasonably satisfied with the waiting time for their appointment at the time of evaluation (overall: satisfied 48%, somewhat satisfied 19%). It is anticipated that satisfaction would drop with increased waiting times.
11. All health professionals, including the GPs, commented that the number of patients being referred to the service is increasing and likely to continue.

**Recommendation 5**

A maximum acceptable waiting time should be decided, to reflect the underlying principle of the introduction of this service. Waiting times should be measured against this maximum and causes of deviation should be identified and addressed. Priority should be given to referrals from local GPs.

12. Lack of appropriately trained radiographers in both hospitals was a concern for both hospitals and one that threatened the effectiveness of the service.

**Recommendation 6**

Centres offering this service should ensure that an appropriate number of DXA radiographers are qualified in bone densitometry.

**Recommendation 7**

An appropriate training course and regular CPD for radiographers providing DXA scanning should be identified.

**Recommendation 8**

Appropriate IT and administrative support should be in place to support the service.

13. The two centres completed different total numbers of DXA scans during the six month evaluation period (St Michael's 350, St Columcille's 588) and different proportions of GP-referred scans (St Michael's 77%, St Columcille's, 87%).

14. Each centre assigned a different amount of scanning time per week to GP referrals, three half-day sessions at St Columcille's and scans intermittently scheduled on any of four days each week at St Michael's.
15. The mean number of GP-referred patients undergoing DXA scans per week differed between the two centres (St Michael's 10.3, St Columcille's 19.7).
16. DXA scanners were not utilised to full capacity at either centre. The key limiting factor appears to be staff availability, as there was sufficient demand to offer more slots each week which would have significantly shortened or eliminated the waiting time for the direct access GP service.

**Recommendation 9**

Participating centres should agree the minimum number of GP referral scans/sessions to be undertaken with HSE Primary Care, to ensure that waiting times are maintained within acceptable levels.

17. Although patients attending both hospitals expressed high levels of satisfaction overall, St Columcille's consistently received higher ratings than St Michael's for every question on the patient satisfaction questionnaire.
18. The significant organisational difference between the two centres was the identification of a single, enthusiastic champion of the service at St Columcille's (a senior radiographer).

**Recommendation 10**

A named individual (likely to be a senior radiographer) should be responsible for the direct access GP DXA scanning service at each centre. The supports needed for this individual to ensure effective functioning of the service should be identified.

**Recommendation 11**

Ongoing structured audit should be undertaken to optimise the service. The format, detail and frequency should be dictated by best practice in clinical governance and agreed between the HSE and the centres providing GP direct access to DXA scanning. It should include quality control factors such as how the machines are calibrated, how scans are taken, what part of the body is scanned, how many sites are read, who is reading them, what cut-offs are taken, qualifications of staff and patient care pathways. Audit of clinical outcomes should also be undertaken regularly and reports of such audits should be provided to the HSE.

19. Patients were least satisfied with the level of information obtained from both their GP and the DXA service regarding DXA scanning and osteoporosis.
20. Patient satisfaction with the referral process was linked with the explanation and information provided to them by the referring GP.

**Recommendation 12**

It is important that patients are adequately informed about osteoporosis and DXA scanning prior to attending for their scan. A relevant patient information leaflet should be identified or developed. Copies should be distributed to referring GPs, with advice about the importance of providing such information to patients at the time of referral.

**Recommendation 13**

Patient information leaflets should also be readily available to patients at relevant sites in hospitals e.g. radiology waiting room, orthopaedic and other outpatients.

21. GPs found the DXA scan reports helpful in managing their patients.
22. Patients received and understood the results of their scans and the management recommended where there was a finding of either osteoporosis or osteopaenia.
23. Changes to lifestyle and medication were sustained by patients in the short time between the scan and the review of patient satisfaction.
24. Differences were identified in the detail provided in the DXA reports to GPs and the subsequent management of patients with a positive scan.

**Recommendation 14**

The amount and type of information provided to GPs in the DXA reports should be agreed, to include recommendations for management where scan results indicate osteoporosis or osteopaenia.

**Recommendation 15**

Referral for specialist care, where it is required, should be the responsibility of the referring GP.

**Recommendation 16**

Bone health services should be integrated with falls prevention services, in line with best evidence.

25. This evaluation identifies demand, feasibility, satisfaction and effectiveness of a GP direct access DXA service.

**Recommendation 17**

GP direct access to DXA scans should be offered across the country. Findings from this evaluation should be considered in developing a national model.

**Recommendation 18**

Increased public awareness of osteoporosis would be beneficial in encouraging people with personal concerns to visit their GP. However, an awareness campaign should only be considered once the service is available across the country. This awareness campaign should include identification of clinical conditions that confer particular risk e.g. prolonged steroid use.

**Recommendation 19**

The educational needs of healthcare professionals with respect to bone health, fracture prevention and DXA should be reviewed.

**Recommendation 20**

Further research should be undertaken to support the development of this service. This should include appropriateness of referrals / adherence to referral guidelines, impact on long-term prevention of osteoporosis and lowering of fracture risk, change in prescribing patterns in general practice in the area, patient care pathways, differences in detection rates between demographic groups e.g. age / gender and economic analysis.

**Limitations of the Evaluation**

- ⇒ Potential positive bias in Patient Satisfaction Questionnaire, as those who were dissatisfied with the service may have been less likely to complete the questionnaire.
- ⇒ Similar concerns may apply to the self-selection criteria for the patient interview process.
- ⇒ An economic analysis was not possible.
- ⇒ Long term impact on health gain for individual patients and on workload and costs for the health sector could not be evaluated in the time frame with the information available to us.

## **Appendix A**

### **Membership of the Expert Group**

Dr Ian Callanan, Clinical Audit Facilitator, St Vincent's Hospital Group

Ms Carmel Donohoe, HSE Primary Care

Dr Geraldine Holland, General Practitioner

Dr Malachi Mc Kenna, Consultant Endocrinologist, St Michael's Hospital

Dr Kevin O'Doherty, GP Unit Doctor

Ms Niamh O'Rourke, HSE Primary Care

Dr Donal O'Shea, Consultant Endocrinologist, St Columcille's Hospital

Dr Mairin Ryan, Health Technology Assessment Project Manager, HIQA

Ms Tanja van der Walt, Senior Radiographer, St Columcille's Hospital

## Guidelines on osteoporosis management

### Major risk factors for osteoporosis-related fractures

- ▶ **Personal history of fracture as an adult**
- ▶ **History of fragility fracture in a first-degree relative**
- ▶ **Low body weight (Body mass index < 19)**
- ▶ **Current smoking**
- ▶ **Use of oral corticosteroid therapy for more than three months**
- ▶ **Estrogen deficiency at an early age (< 45 yrs)**
- ▶ **Dementia**
- ▶ **Poor health/frailty**
- ▶ **Recent falls**
- ▶ **Low calcium intake (lifelong)**
- ▶ **Low physical activity**
- ▶ **Alcohol in amounts > 2 drinks per day**

#### Additional risk factors:

- ▶ **Impaired vision**

*Underlined items identify potentially modifiable risks*

### WHO definition of osteoporosis based on DXA

**DXA scanning of hip and lumbar spine is the gold standard for the diagnosis of osteoporosis. DXA scanning provides several numerical scores, however the most useful is the T score. It compares the patient's BMD (bone mineral density) to that of a reference range of peak bone densities.**

- ▶ **Normal BMD is defined as a T score of  $\geq -1$ , ie. T -0.5 is within normal limits**
- ▶ **Osteopaenia includes all patients with a score  $T < -1$  and  $> -2.5$**
- ▶ **Osteoporosis is defined as  $T \leq -2.5$**
- ▶ **Severe osteoporosis is defined as  $BMD \leq 2.5$  with one or more fragility fractures at any site**

### NOF guidelines for fracture reducing therapy

- ▶ **All women who have a history of hip or vertebral fracture**
- ▶ **T score of -2 with no risk factors (marked osteopaenia)**
- ▶ **T score of -1.5 with one or more risk factors (moderate osteopaenia)**

*Reference: National Osteoporosis Foundation (NOF). Physician's Guide to Prevention and Treatment of Osteoporosis. Washington DC: National Osteoporosis Foundation, 2003*

*Adapted from: Forum 2004; 21(2): 27-34 (Distance learning module – Post menopausal osteoporosis: Current practice by Dr John Ryan and Dr Mark Phelan)*

## Appendix C Referral Guidelines

### St Michael's Hospital Referral Guidelines

1. Postmenopausal women
2. Men over the age of 70
3. Patients on long term steroid therapy.

### St Columille's Hospital Referral Criteria

#### A. Men

1. Low levels of the male hormone, Testosterone

#### B. Women

1. Lack of oestrogen caused by
  - Early menopause
  - Early hysterectomy (prior to 45 years)
2. Amenorrhoea for 6 months or more as a result of over-exercising or over-dieting.
3. Post-menopausal and considering HRT treatment

#### C. Men and Women

1. Previous fragility fracture (especially hip, spine, wrist)
2. Use of glucocorticosteroids (Prednisolone > 5 mg for > 3 months), Thyroid hormones, Anticonvulsants, Antacids containing Aluminium, Gonadotropin, Methotrexate, Cyclosporin A, Heparin and Cholestyramine.
3. Radiological osteopaenia (especially associated with family history).
4. Family history of osteoporosis (mother, father, sibling with proven diagnosis, kyphosis or a low trauma fracture)
5. Low BMI (small boned and under 57kg / 127 pounds)
6. Anorexia nervosa
7. Limited lifetime Calcium intake
8. Vitamin D deficiency
9. Secondary Osteoporosis suspected with these conditions
  - Coeliac disease
  - Inflammatory bowel disease
  - Chronic liver disease
  - Primary hyperparathyroidism
  - Functioning pituitary tumours
  - Thyrotoxicosis
  - Chronic renal failure
  - Organ transplant
  - Inflammatory arthritis
  - Cystic Fibrosis
  - Primary hypogonadism
  - Osteogenesis Imperfecta
  - Multiple Sclerosis

#### Contra-indications for a DXA Scan request:

1. Cannot be performed within 72 hours of an IVP examination
2. Pregnancy
3. Up to 3 months post Barium examination
4. Undergoing radioactive therapy.

## Appendix D Patient Satisfaction Questionnaire



### Evaluation of DXA Scanning Programme INFORMATION SHEET FOR PATIENTS

You have been referred directly for a DXA scan (e.g. bone density scan) by your GP. This is a new service introduced by the HSE. The Irish College of General Practitioners have been asked to evaluate the effectiveness of this new way of accessing this service.

We invite you to take part in this evaluation. Please take time to read the following information carefully, as it explains what we are doing and what we would like you to do. Ask us if there is anything that is not clear or if you would like more information. Take as much time as you need to decide whether or not to take part. Taking part or not taking part will not in any way affect the way you are being treated now or in the future.

⇒ **What is the purpose of the project?**

We have been asked to explore the views of patients and health professionals about GP direct access DXA Scanning programme and suggest ways to improve current practice.

⇒ **Why have I been chosen?**

You have been chosen as someone who was referred by their local GP to have a DXA scan.

⇒ **Do I have to take part?**

No, it is up to you to take part. If you do decide to take part, you are still free to withdraw at any time and without giving a reason.

⇒ **What would happen to me if I took part?**

If you agree to participate, we will ask you to complete a 10 minute questionnaire about your satisfaction with the DXA Service.

⇒ **What would I have to do?**

There is no preparation involved, nor are there any medical procedures involved. You will only need to fill in one questionnaire.

⇒ **Would my taking part in this project be kept confidential?**

Yes, the questionnaire is anonymous and strictly confidential. We will not ask for your name, and you will not be identified in any way by filling in the questionnaire.

⇒ **What will happen to the results of the project?**

The results will be collected and analysed for the evaluation report. You may obtain a copy of the results when the evaluation is over by contacting the Primary Care Unit, Health Service Executive, Dublin mid Leinster, Block B, Civic Centre, Main St, Bray, Co Wicklow, Ph: 274 4200.

⇒ **Who is organising and funding the project?**

The Women's Health Programme team at the Irish College of General Practitioners (ICGP) are organising this project. It has been funded by the Primary Care Unit of HSE. The project has been approved by the ICGP Ethics Committee.

Thank you for your time,

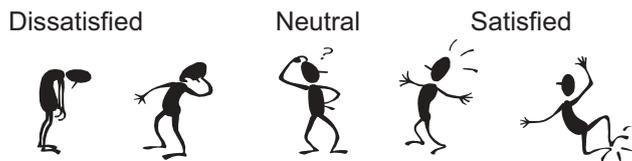
**Ms Rosina Ghuffar and Dr Ailís ní Riain,  
Women's Health Programme. Irish College of General Practitioners,  
4-5 Lincoln Place, Dublin 2.  
Ph: 01 676 3705**



## Patient Satisfaction Questionnaire

<b>Section A:</b> For each of these questions, please rate your level of satisfaction on a scale of 1 to 5 where 1 = very dissatisfied and 5 = very satisfied. Please circle the correct answer.	Dissatisfied		Neutral		Satisfied	
1. Your GP explaining the reason for the DXA Scan to you.	1	2	3	4	5	Comment: _____
2. Your GP providing written information about osteoporosis.	1	2	3	4	5	Comment: _____
3. Your satisfaction with being referred directly to the DXA service by your GP.	1	2	3	4	5	Comment: _____
4. The convenience of the appointment time given to you by the DXA service.	1	2	3	4	5	Comment: _____
5. The provision of relevant information about the DXA Scan from the DXA Service prior to your appointment.	1	2	3	4	5	Comment: _____
6. Contacting the DXA Service by phone.	1	2	3	4	5	Comment: _____
7. Finding where the DXA Service is located.	1	2	3	4	5	Comment: _____
8. The waiting time for your DXA appointment since your GP referral.	1	2	3	4	5	Comment: _____
9. The length of time waiting in the waiting room on the scanning day.	1	2	3	4	5	Comment: _____
10. The comfort and safety while waiting.	1	2	3	4	5	Comment: _____
11. How well the Radiographer listened to your concerns.	1	2	3	4	5	Comment: _____
12. How well the Radiographer explained what he/she was going to do.	1	2	3	4	5	Comment: _____
13. The amount of time the Radiographer spent with you.	1	2	3	4	5	Comment: _____

*Please turn over.....*



14. The advice you received from the Radiographer.	1	2	3	4	5
	Comments: _____				
15. The friendliness of the Receptionist and other staff.	1	2	3	4	5
	Comments: _____				
16. The helpfulness of the Receptionist and other staff.	1	2	3	4	5
	Comments: _____				
17. How well your privacy was respected by the staff at the DXA Service.	1	2	3	4	5
	Comments: _____				

**Section B:**

Please complete the following details about yourself?

- 1). Your sex:      Male  Female                       2). Your age: \_\_\_\_\_ years

**Section C:**

1. Would you recommend a friend or family member to DXA Service?    Yes  No

Why? \_\_\_\_\_

2. What do you like best about our service?

\_\_\_\_\_  
\_\_\_\_\_

3. What do like least about our service?

\_\_\_\_\_  
\_\_\_\_\_

4. Please suggest one thing which would have improved your experience of the DXA Service:

\_\_\_\_\_

**Thank you for completing our questionnaire.  
Please return this to the receptionist in the envelope provided.**



## DXA Service Follow-Up

- *Optional* -

We would like to follow-up this questionnaire with telephone interviews with some of you who may have received advice and recommendations on the day of your scanning and further treatment from your GP.

If you have received any advice or recommendations, would you be prepared to help us further at a later date by being interviewed for 10 minutes on the telephone?

If so, please tick the Yes box, fill in your details below and return it to the receptionist either together with the questionnaire or separately if you don't want your name to be connected with the questionnaire. Your identification will not be given to anyone outside of DXA Scanning service.

Thank you for your time.

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Yes, I would be happy to be interviewed by telephone:

Firstname: \_\_\_\_\_ Surname: \_\_\_\_\_

Telephone: \_\_\_\_\_

The best times to contact me are (include days if applicable):

\_\_\_\_\_  
\_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_



Please return to:

*The Women's Health Programme,  
Irish College of General Practitioners,  
4-5 Lincoln Place,  
Dublin 2.*

## Appendix E General Practitioner Questionnaire



### GP Direct Access DXA Service GP Evaluation Questionnaire

**This survey is totally confidential and anonymous.**

1. How did you hear about the new GP direct access public DXA service in your area?
- Haven't heard about it before today
  - Invitation letter from the HSE
  - Invitation letter from the Hospital
  - From other GPs
  - From your patient
  - Other, please describe: \_\_\_\_\_

2. Have you referred patients to the direct access DXA service?  Yes  No

3. If yes to Question 2, please estimate the number of patients referred to the DXA service.
- 1       2-5       6-10       >10

4. Overall, were you satisfied with this service provided?  Yes  No

If no, please outline why not \_\_\_\_\_  
\_\_\_\_\_

5. If you did not have GP direct access public DXA service, how would you have managed such patients? (please tick all that apply).
- Managed in practice without investigation
  - Referred to Endocrinology clinic
  - Referred to private service for DXA scan
  - Other, please describe \_\_\_\_\_

6. Did you find the hospital DXA report useful for the management of your patients?
- Yes (if yes, please continue question 7)
  - No (if no, omit question 7 and please explain in what way it was not useful?)
- \_\_\_\_\_
- \_\_\_\_\_

7. Was the DXA report useful for you in the management of your patients?

	ALL patients	SOME patients	NO patients
(a) Clinical Diagnosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Recommendations re lifestyle choices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Recommendations re medical treatment required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Recommendations re specialist referral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Recommendations re repeat scanning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Please turn over.....**

7. Do you feel there is a requirement for guidelines for the treatment of osteoporosis/osteopaenia in the primary care setting?

Yes  No

8. Do you have any recommendations regarding the referral guidelines?

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10. Do you have any recommendations regarding the referral process for direct access DXA?

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11. Do you have suggestions to improve the direct access DXA service?

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12. Any other comments?

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13. How would you prefer to receive information about new services that become available to GP practices (please tick all that apply)

- Email  
 Letter  
 Fax  
 ICGP website  
 Local Faculty of ICGP  
 Other, please describe \_\_\_\_\_

Please complete the following details about yourself ?

Your sex :      Male  Female       Your age : \_\_\_\_\_ years.

Did you refer your patient for a DXA scan to?

St Columcille's Hospital       St Michael's Hospital

**THANK YOU FOR COMPLETING OUR QUESTIONNAIRE.**

**PLEASE RETURN THE QUESTIONNAIRE IN THE ENVELOPE PROVIDED BY 26 JUNE, 2007.**



**Irish College of General Practitioners**

4-5 Lincoln Place,  
Dublin 2

**Tel:** 01 676 3705

**Fax:** 01 676 5850

**Email:** [info@icgp.ie](mailto:info@icgp.ie)  
[www.icgp.ie](http://www.icgp.ie)