

## Assessment of increased General Practitioner access to diagnostic imaging

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### Abstract

#### *Aim*

This study aims to evaluate the impact of increased radiological access for General Practitioners (GPs) on healthcare workflows and patient care outcomes, with a focus on musculoskeletal (MSK) MRIs.

#### *Methods*

A mixed methods approach was used for this study. GPs completed online questionnaires and semi-structured interviews were conducted with orthopaedic and radiology consultants. Doctors were asked to evaluate their experience working within the GP 'direct access' to radiology scheme.

#### *Results*

Increased GP access to radiology had many positive benefits, including improved efficiencies in healthcare workflow. Of the GPs surveyed 44 (84.5%) found an increased patient satisfaction rate and 46 (88.5%) found improved efficiencies in patient outcomes. However, it may be contributing to downstream inefficiencies and affecting prioritization of more urgent imaging in the system. 52 GPs surveyed and 8 semi structured interviews with radiologist and orthopaedic consultants were analysed.

#### *Discussion*

Increased GP access to radiology has led to many important benefits in the Irish healthcare system. There is potential for more efficient healthcare workflows, and improved patient outcomes, pending more appropriate referral pathways and further investment in infrastructure and training.

## Introduction

As part of Winter Initiative 2020, the Health Service Executive (HSE) introduced a structured pathway for GPs to ‘directly access’ radiological diagnostic tests, including MRI, allowing a greater level of care to be delivered within the community. This scheme was introduced with the intention of easing pressure on busy hospitals during the Covid pandemic, effectively meaning many patients would get scans booked through their GPs quicker.<sup>1,2</sup>

Research indicates that where GPs gained increased access to ordering MRIs and radiology imaging there is significant potential for cost saving and greater efficiencies.<sup>3-9</sup> However, there is also a risk that inappropriate scanning leads to higher costs without benefit, and in some cases, even causing harm to patients.<sup>10,11</sup> In addition, other studies have shown that utilising enhanced protocol driven referral systems, improving GP education, and enhancing communication between primary and secondary care, can lead to better use of radiological resources.<sup>12,13</sup>

## Methods

A mixed methods approach was used to collect anonymised data via an online questionnaire (containing 30 questions comprising of; nine multiple choice questions, 19 questions utilizing a five-point Likert scale and two open ended questions), which GPs accessed via the GP buddy emailing system (n=3100 with an average open rate of 35%). The questionnaire aimed to evaluate GPs view of increased GP ‘direct access’ to radiology, including MSK MRI, on their work practices and their patient outcomes.

Semi structured interviews were conducted with four orthopaedic and four radiology consultants. They were asked their opinions from their experience working with scans arranged through the ‘direct assess’ scheme.

### *Ethical considerations*

Ethical approval for the study was granted by UCD School of Medicine UTMREC-SM Ethics Committee.

### *Data analysis*

Data from the questionnaires was collected using google forms and were recorded and analysed with SPSS software.

Semi-structured interviews were conducted remotely and recorded using Zoom. The recorded interviews were transcribed, coded and thematically analysed using NVivo software.<sup>14</sup> The consultants interviewed all work in the public and private systems, including

seven males and one female radiologist. They were aged between 40 and 60. The interview time range was from 9-33mins.

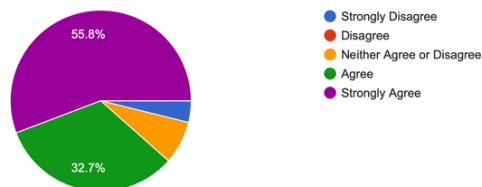
## Results

### Survey:

Of the GPs surveyed 46 (88.5%) reported benefits to their practice and improved patient outcomes since the introduction of the GP 'direct access' scheme. (Fig 1)

Fig. 1

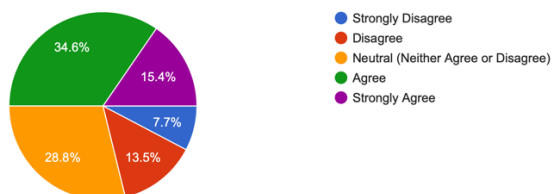
10. 'Direct access' radiology initiative has been beneficial for your practice and to your patient outcomes.  
52 responses



26 (50%) of GPs surveyed reported that increased radiological access had a beneficial effect on easing burden and workload in primary care. (Fig. 2)

Fig. 2

15. 'Direct access' radiology initiative has been beneficial in easing the burden in General Practice and primary care.  
52 responses



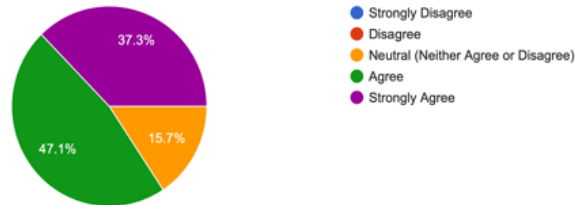
In terms of speeding up the diagnosis of patients, 42 (81%) of GPs surveyed felt 'direct access' had a positive impact. 47 (90%) of GPs surveyed reported that 'direct access' had beneficial effects on refining the appropriateness and direction of the referral sent to secondary care.

46 (88.5%) of GPs surveyed said that 'direct access' to MRI led to improved benefits for patient outcomes, with MSK conditions. 44 (84.5%) of GPs report high satisfaction from patients since the introduction of the scheme. (Fig.3)

Fig. 3

29. There has been a high satisfaction response from patients to the 'direct access' MRI scans since the introduction of the 2020/21 winter initiative.

51 responses



18 (34%) of GPs felt there may be an increased volume of inappropriate referrals made for MSK conditions since GP 'direct access' to radiology was introduced. 39 (75%) of GPs surveyed did not feel that there were adequate guidelines, education and resources were available for GPs to order and manage MSK scans and reports. 47 (90%) of GPs said that they would welcome improvement to these parameters.

Only 52 questionnaires were returned, less than 5% completed response rate. Of the GPs (n=52) who completed the survey, 39 (75%) of those surveyed were using the 'direct access' scheme regularly, weekly or more often.

#### GP open ended questions;

In the open-ended section of the questionnaire, GPs were invited to leave comments about how they felt about the GP 'direct access' scheme. Positive feedback included expediting diagnosis, management for secondary referral, patient satisfaction and outcomes.

*"Essential part of modern medicine and huge benefit to patients and hospitals. Essential it continues."*

However some GPs expressed concerns over the cost effectiveness of the scheme which could be inappropriately overused at times. There were medico legal concerns related to added responsibility on GPs to refer patients for scans now that they have increased access. Some GPs felt that it increased the workload on GPs dealing with scan referrals and interpreting results. It was also felt that there can be increased expectation from hospitals and patients to refer for scans.

*"Increased GP workload in managing results and requests from hospitals to arrange scans for their patients."*

### Semi-structured interviews and themes;

Data from the eight semi-structured interviews were coded and then grouped into themes and further analysed. Four common themes were identified; Efficiencies in workflows, Appropriateness of scans, Patient outcomes and *Best use of resources*.

### Efficiencies in workflows;

Hospital consultants interviewed generally found that the GP 'direct access' scheme improved efficiencies in the healthcare system since its introduction. Orthopaedic consultants felt it speeded up decision-making and in some cases it reduced the need for a second follow-up appointment.

*"It's speeded it up, decision making. Yes, because we have access to the data." (P4 orthopaedic Consultant)*

Radiology referrals have increased since the introduction of this scheme. Not just from GP referrals, but also from most sources, which also seems to be the trend internationally.

*"Overall, there's been a global uptake in radiology referrals over the last number of years." (P2 Radiologist)*

Increasing radiological investigations through GP access or other sectors, can uncover unexpected findings, including malignancies. Earlier detection should improve prognosis for many patients. These incidental findings may require further investigation to ascertain their clinical significance, which can further increase workload, causing delays elsewhere in the health care system, without necessarily improving clinical outcomes in many cases.

*"It can create a lot of the downstream imaging as well."(P3 Radiologist)*

### Appropriateness of scans:

In analysing the interviews, consultants generally reported the majority of scans requested by GPs through 'direct access' were appropriate.

*"With GP access the vast majority are appropriate" (P4 Radiologist)*

It is unlikely for any system that every scan will be completely appropriate whether it's ordered through secondary care or through primary care. Radiologists interviewed generally

felt scans ordered for musculoskeletal MSK conditions tended to be more appropriate, compared to other specialty areas.

*"Sometimes you end up getting the wrong study first, with the best of intentions.. with MSK you're seeing generally appropriate referrals." (P1 Radiologist)*

#### Patient outcomes;

Having the most appropriate scans requested and performed in a timely manner should lead to a more efficient and accurate diagnosis, which should yield better healthcare and patient outcomes and satisfaction.

*"It's gotta be better for patients and GPs because it cuts out the six months or more waiting to get them access with a scan, they know they need."(P1 Radiologist)*

GP 'direct access' scheme has led to many patients receiving scans in a time efficient manner. However, often it does not lead to resolution of their issues, as patients may still have significant delays waiting for follow-on procedures or hospital beds for operations.

*"Speeds it up, decision making yes... another issue is access to theatre beds." (P4 Orthopaedic)*

#### Best use of resources;

All resources including radiological access have limitations. In addition to financial and time constraints, there are limitations to finite resources that include the number of scanners, the capacity of beds and theatre places in hospitals, number of GPs to request and interpret scan results, and hospital staff to follow up on results. There is a need for greater financial investment in resources given the trend of increased demand for radiological imaging. Optimising the use of resources should increase efficiency.

*"The capital infrastructure to provide GPs with proper access to diagnostics probably isn't there yet." (P2 Radiologist)*

Scans ordered through this GP are being completed much quicker than most other public outpatient scans in private systems using public money. Compared to the public system, in private institutions there is very little prioritisation given to scans and the urgency of private scans requests.

*"GP 'direct access' happens a lot quicker than anything else... it doesn't seem to be a strict vetting process." (P3 Radiologist)*

Clearer protocols and pathways are needed for GPs to refer patients for scans, in addition to improved education for GPs optimising imaging referrals and managing results of these images.

*“There’s a need for greater guidelines in terms of what GPs should be referring and what they should be doing with scan results would be helpful.” (P5 Orthopaedic)*

Enhanced communication and cohesion between primary and secondary care should help education and amplify efficiency. A more integrated communication and collaborative approach between public and private healthcare facilities could help reduce duplication of work.

*“If you don’t have the benefit of previous images, things are very difficult.” (P3 Radiologist)*

## **Discussion:**

### *Key findings*

Evaluation of the GP surveys and semi-structured interviews showed overall positive improvements since the introduction of the GP 'direct access' scheme, in terms of improved patient satisfaction and outcomes, including more efficient diagnosis. In some cases earlier detection of malignancies uncovered through this scheme have benefited prognosis.

GPs felt the scheme helped them make better decisions, and improved patient management and triage. Some GPs feel increased pressure to order nonessential scans from patients or other healthcare professionals. The scheme has increased workload in radiology departments and on GPs.

There appears to be limited prioritisation regarding urgency of scans ordered through the scheme. The majority of scans ordered through the scheme were appropriate however reducing inappropriate scans should improve efficiencies.

Improved education with clearer protocols and guidelines would be welcomed by GPs and hospital consultants, which should lead to higher quality decisions and enhanced use of resources.

### *Comparison to existing Literature:*

Few studies exist which examine Irish GPs having increased access to radiology. The data uncovered in this study aligns with previous research, showing increased GP access to

Radiology, including MSK MRI generally has a positive impact on healthcare work flows and on patients outcomes and satisfaction.<sup>3-9</sup>

Other studies have shown that increased GP access to Radiology can lead to more inappropriate scans which can lead to higher costs without benefit and has potential to harm patients.<sup>10,11</sup>

Previous research has suggested improved education, referral pathways and protocols can lead to more appropriate radiology referrals yielding greater efficiencies and better patient outcomes.<sup>12,13</sup>

### *Methodological challenges and Limitations*

This study is a relatively small study in terms of the number of GPs surveyed. The results are based mainly on the opinions of doctors and their assessment of their work, cost effectiveness and their patients' outcomes and satisfaction. Further research is needed to examine the cost effectiveness of this scheme, to obtain bigger populations of doctors' opinions, and to assess actual patient outcomes. Perhaps research should analyse patients proceeding to an intervention basis on their scan results.

### *Recommendations*

Future planning needs to be considered for infrastructure and further training of staff. A review is needed into guidelines for this scheme, including the pathways of GP referral for radiological investigations, and protocols for best management in primary care for radiological results. This review should ideally be in consultation with multidisciplinary parties involved (ie. GPs, radiologists and hospital clinicians). Consideration should be given to guidelines be utilised in UK and Western Australia. GPs should have better access to the current iRefer guidelines from the Royal College of Radiologists.<sup>15-17</sup>

It would be beneficial if an improved system of prioritizing scans was in place. It should be considered if more effective communication could be encouraged between GPs, radiologists and secondary care, and also between public and private radiology sectors.

The purpose of this research was to assess the effectiveness of increased GP 'direct access' to radiological investigations, as a new resource in terms of patient outcomes and efficiencies of workflow in healthcare. The results reported an overall positive response regarding both. However, increased GP radiological access has potential to generate increased workloads for GPs and radiology departments, leading to some downstream inefficiencies. A more structured approach to pathways for referral and protocols for managing results should help optimise radiological resources.



**Declarations of Conflicts of Interest:**

None declared.

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