

# Open-Access Ultrasound Referrals from General Practice

## Abstract:

P Hughes, P Beddy, N Sheehy  
Department of Radiology, St James's Hospital, Dublin 8

## Abstract

Direct access referral for radiological investigations from General Practice (GP) provides an indispensable diagnostic tool and avoids the inherently long waiting time that referral through a hospital based specialty would entail. Improving access to hospital based radiology services is one of Health Information and Quality Authority's key recommendations in its report on patient referrals from general practice. This study aimed to review all GP referrals for ultrasound investigations to a tertiary referral teaching hospital over a seven month period with respect to their demographics, waiting times and diagnostic outcomes. 1,090 ultrasounds originating in general practice were carried out during the study period. Positive findings were recorded in 332 (30.46%) examinations. The median waiting time from receipt of referral to the diagnostic investigation was 56 days (range 16 - 91 years). 71 (6.5%) patients had follow-up imaging investigations while recommendation for hospital based specialty referral was made in 35 cases (3.2%). Significant findings included abdominal aortic aneurysms, metastatic disease and lymphoma. Direct access to ultrasound for general practitioners allows the referring physician to make an informed decision with regard to the need for specialist referral. We believe these findings help support the case for national direct access to diagnostic ultrasound for general practitioners.

## Introduction

Ultrasound is a non-invasive, radiation free investigation with a wide variety of clinical applications. Direct access for General Practitioners (GPs) to hospital based radiology services, in the form of plain film radiography, is well established. Direct access to ultrasound however is not universally available in Ireland. The traditional patient care pathway in Ireland involves referral to a hospital specialist who may then request imaging if deemed appropriate. A 2011 HIQA report recommended that the HSE should carry out a review of the benefits of a direct access referral system. To our knowledge no such review has been carried out to date. There is significant data supporting the benefits of direct access referral for ultrasound, though little in the recent literature and none in Ireland.<sup>2,9</sup> It has previously been demonstrated that referrals from GPs have a comparable rate of positive findings when placed alongside referrals from hospital consultants.<sup>2</sup> It has also been shown to reduce the number of outpatient and emergency department referrals made by general practitioners.<sup>2,4</sup> Robinson et al. demonstrated that direct access to ultrasound is the preferred arrangement for the majority of general practitioners, rather than transferring services to primary care. This study aimed to review all direct GP referrals for ultrasound investigations to a tertiary referral teaching hospital and to assess the waiting times and diagnostic outcomes.

## Methods

All GP referrals are vetted by a consultant radiologist and triaged according to urgency, as per the HIQA patient referral pathway. Our department is staffed by one Consultant Radiologist, one Specialist Registrar and two to three Sonographers, including one Clinical Specialist. Ultrasounds are generally reported on the same day as they are performed and the results made available to the referring GP either by post or via Healthlink. Urgent or unexpected results are communicated directly to the referring physician by phone at the time of reporting. All patients who underwent diagnostic ultrasound between January 1st and July 31st 2012 were identified using the hospital Radiology Information System. Patients who had an ultrasound requested by a GP were included in the study, patients were excluded if the referral was from a Hospital Consultant. Breast and axillary ultrasound are carried out in the breast imaging department and were also excluded. The radiology reports from the included studies were reviewed by a Specialist Registrar in radiology. Patients were divided into two possible groups: those with positive findings and those with normal studies. A positive finding was classed as any finding which could explain the patient's symptoms or a significant incidental finding. Studies which were normal or those that demonstrated benign entities such as simple renal cysts or simple liver cysts were included in the normal category. The number of patients who had a recommendation for subsequent specialty referral or who underwent follow up imaging investigations was also noted.

## Results

Over the 7 month period, there were a total of 7,624 ultrasound investigations carried out in our department. Of these, 1,090 referrals (14.3%) originated from general practice. A total of 327 different referring physicians were identified. The majority of these (304) referred less than 10 patients each. 21 GPs made between 10-20 referrals and 2 physicians sent in excess of 20 referrals in the 7 month period. The average age of patients was 43.7 years (range 16-91 years). The male to female ratio was 1:3.4. The median turnaround time was 56 days from the time of referral to the time of scan. Of the 1,090 studies, there were positive findings in 332 (30.5%) patients (Table 1). 71 patients (6.5%) had further imaging investigations either to further characterise a lesion seen on ultrasound or to ensure resolution or stability of a detected lesion. 35 patients (3.2%) had a recommendation for subsequent referral to a hospital based specialist based on the result of their ultrasound. Within the category of positive findings, there were 9 patients who required urgent specialist referral including; 2 large abdominal aortic aneurysms both of which underwent endovascular repair within 2 days; 2 patients with newly diagnosed metastatic disease to the liver; 1 suspicious thyroid mass later confirmed as papillary thyroid cancer; 1 patient with extensive lymphadenopathy later confirmed as Hodgkin's lymphoma; 1 patient with hydronephrosis secondary to an obstructing calculus; 1 patient with a neck abscess requiring surgical drainage. Renal ultrasound demonstrates the highest rate of negative findings with 121 of 131 (92.36%) studies classed as normal (table 1). Further review of the indications for these studies demonstrates that urinary tract infection was the most common reason for referral, accounting for 47 of 131 cases (44 of which were normal) while flank pain accounted for 32 cases (28 of which were normal).

## Discussion

Direct access ultrasound for general practitioners has been consistently shown to yield a similar rate of positive diagnostic outcomes to referrals generated from the hospital outpatient department which demonstrates that general practitioners make good use of the resource when it is made available to them.<sup>2,4,6</sup> Referrals from general practice accounted for just 14.7% of the total number of ultrasounds performed over the study period, significantly lower than the number of referrals from the outpatient department and inpatients. There are well established referral guidelines available to GPs, such as the Royal College of Radiologists' iRefer, to guide GPs in the appropriateness of referral and to ensure the correct radiological investigation is performed to obtain maximum information with the minimum of radiation, inform clinical management, reassure the patient and add confidence to the clinician's diagnosis. In the case of a normal result, the GP is able to provide reassurance to the patient and avoid unnecessary specialist referral.<sup>2</sup> Direct access to radiology results in an overall reduction in the number of referrals to hospital outpatient and emergency departments.<sup>2</sup> In the absence of a direct referral system, GPs have no choice but to refer patients that require imaging to hospital based specialists. 44 patients in our study required urgent specialist referral or had a recommendation for further specialist referral made. It can be extrapolated from this that up to 1,046 patients were able to benefit from a diagnostic study and avoid an unnecessary outpatient visit. By removing the need to go through a hospital specialty a considerable saving can be made in terms of waiting time. The time from referral to investigation has been identified by HIQA as a key performance indicator and the HSE's HealthStat states that the target metric for waiting times from GP referral to scan date is 70 days, our median waiting time is within this target.

While this study provides evidence to support a direct referral system, we acknowledge a number of limitations. There are other options for imaging in the community, such as private healthcare providers. This study only captures those

patients referred from GPs to our hospital and may not reflect the absolute need in the catchment area. The number of patients in our study referred for follow up was relatively low, however this only includes those who were followed up in our institution and some patients may have been further investigated elsewhere. We do not account for those who may have been referred for further investigation but were lost to follow up. Finally, the division into either a normal or an abnormal is potentially too simplistic as the designation of incidental findings may be quite subjective. This study provides further evidence to support the provision of a nationwide direct access referral system for general practitioners. The Irish Faculty of Radiologists supports the provision of a walk-in access to services for patients provided it is supported by an adequate number of specialised staff and is properly resourced. <sup>1</sup> At a time where outpatient departments are stretched to capacity and there is a politico-economic movement towards re-emphasising the role of primary care physicians as the gatekeepers to the hospital system, we believe that providing an adequately resourced direct access ultrasound service is of benefit to hospitals, general practitioners and patients alike.

Correspondence: N Sheehy  
Department of Radiology, St James's Hospital, Dublin 8  
Email: nsheehy@stjames.ie

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