

Views of radiologists on referral of patients for investigations by primary care doctors in Sri Lanka

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Introduction

Primary care physicians are often the first medical contact within the health care system who provide open and unlimited access and deal with all health problems regardless of the age, sex, or any other characteristic of the person concerned. They are faced with illness which presents in an undifferentiated and unspecific way or at an early stage in its development, some of which require urgent intervention. They manage long-term problems and refer the patient to the appropriate specialty service as need arises¹.

Most conditions encountered in primary care are managed without recourse to imaging but when necessary imaging facilities empower general practitioners (GPs) to investigate a patient in depth. This may either avoid a referral or may result in a specific referral to the appropriate specialist there by keeping delays to a minimum prior to treatment. This also increases the efficiency of hospital outpatient facilities and saves time and cost to the patient. It is also in agreement with the WONCA Europe core characteristics of a GP that states that "GPs make efficient use of health care resources"².

Good communication between GPs and radiologists is essential for patient-oriented use of imaging methods. Good collaboration between GPs and clinical radiologists is a need and a challenge at the same time. It serves both clinical disciplines and their patients³. The relationship between GPs and radiologists should be developed to enable the GP to present the clinical problem and the radiologist to identify the appropriate investigation³. Where the investigation requested by the GP is considered inappropriate or where a more sophisticated but costly examination is preferred a direct discussion between the primary care physician and the clinical radiologist is of great importance⁴. The Royal College of Radiologists has introduced guidelines to encourage more appropriate use of diagnostic radiology and so reduce the use of clinically unnecessary irradiation of patients⁵. The Royal College of General Practitioners (RCGP) and the Royal College of Radiologists emphasized in 1993 and re-

emphasized in 2004 the importance of appropriate imaging for the management of the patient in the primary care setting^{6,7}.

They highlight that a request for a radiological examination is equivalent to a request for a clinical consultation⁸ and therefore history and clinical findings should be provided in the radiology referral forms⁹. The Austrian Society of General Practice and Family Medicine have elaborated referral guidelines for imaging for GPs¹⁰. These include, assessing the indication for radiological testing, clear presentation of the clinical problem, physical findings and benefit versus risk evaluation (e.g. radiation). They emphasized that GPs should inform the patient about the proposed radiological test and explain radiological findings to the patient with care and assure optimal patient management in the given setting¹⁰. They stated that giving into patient demands for radiological testing without clear indications is inappropriate¹⁰.

There is evidence that the introduction of Radiologists' guidelines on referral reduced the rate of GP referrals to radiologists^{6,11,12}. Wider use of radiological guidelines by general practitioners, with audit and peer review, would reduce inappropriate referrals and thus reduce unnecessary irradiation of patients¹³.

It is essential that clinical radiologists provide high quality, efficient and cost effective service which satisfies the requirements of the patients and the primary care physician who is responsible for the continuity of care¹⁴.

The radiology report is the primary work product of the radiologist and serves as the principal method of communicating the findings of an examination with both the referring physician and the patient. Several studies have shown that both clinicians and radiologists have a preference for structured, itemized reports^{15,16}. It is likely to be useful for disease conditions that fit within the format of the templates. Conversely, structured reporting might not be so useful for "special" or "rare" conditions that require a tailor-made approach. While GP satisfaction with the content of radiology reports and their preferences regarding the level of details has been studied¹⁵ the views of radiologists regarding the referral of patients by general practitioners has seldomly been investigated.

In Sri Lanka there is no proper referral system between primary care and secondary/tertiary care. Similarly, as far as authors are aware there were no serious deliberations

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between GPs and radiologists on what each other should expect when patients are referred for investigations and how communications should take place. As a result there are no guidelines or a standard format as what items of information should be included when patients are referred for investigations. This study explores the views of radiologists regarding referral of patients by the GPs and how the referral letters should be improved with the view of providing optimal care to the patient.

Methodology

This was a descriptive study carried out among board certified radiologists in Sri Lanka.

A self administered questionnaire was prepared to explore views of specialists. This questionnaire was formulated based on the data gathered in an earlier qualitative, explorative research conducted among radiologists by the authors¹⁶. It included structured formats (Figure 1 & 2 without text in red) to be used by GPs when they refer patients for ultra sound scans and request

reports of X rays from radiologists. Those formats were prepared by the investigators through their experience and according to the views expressed by the radiologists in the earlier qualitative study.

A list of all the board certified radiologists which included 168 names, was obtained from the Postgraduate Institute of Sri Lanka (PGIM) and 10 radiologists who participated in the earlier qualitative study were excluded. Effort was made to find the contact details of others by obtaining lists from the College of Radiologists and Ministry of Health in Sri Lanka. Contact details of 120 radiologists were found. The questionnaire was posted to all the radiologists (120) whose contact details were available with a covering letter and a stamped envelope to return it.

Results

Of the 120 radiologists invited to participate in the study thirty two (26.6%) responded.

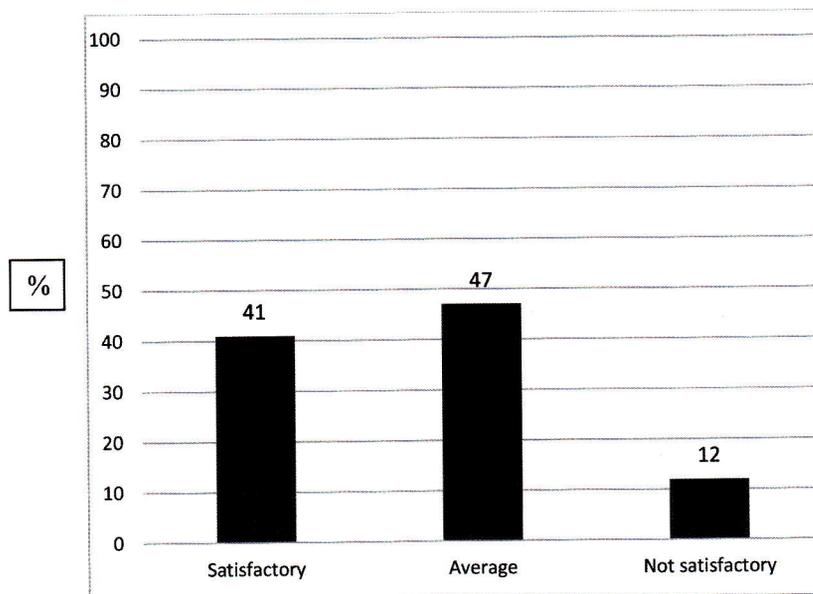
Figure 1	Family Medicine Clinic Faculty of Medicine, University of Kelaniya, Ragama Tel:01132179411
URGENT / ROUTINE	201.../.../....
..... Consultant Radiologist.	
Dear Dr/Sir/Madam,	
Request for Ultra Sound Scan	
of	
Name:.....	Age:..... Male/Female
Indication:.....	(Space for diagram)
.....	
.....	
Past Hx:	
Relevant Ix & Previous imaging findings:	
.....	
.....	
Probable Diagnoses:	
.....	
Special requests:	
.....	
.....	
Dr.(Name)	
Qualifications	
Mobile No	

Figure 2	Family Medicine Clinic Faculty of Medicine, University of Kelaniya, Ragama Tel:01132179411
URGENT / ROUTINE	201.../.../....
..... Consultant Radiologist.	
Dear Dr/Sir/Madam,	
Request for reporting X RAY	
of	(NO
Name:.....	Age:..... Male/Female
Indication:.....	
.....	
.....	
Past Hx:	
Relevant Ix & Previous imaging findings	
.....	
.....	
Probable Diagnoses:	
.....	
Special requests:	
.....	
.....	
Dr.(Name)	
(Qualifications)	
Mobile no	

Figure 1 and 2.

Table 1. Profile of radiologists who responded to the questionnaire

Age range (years)	37-58
Gender	
Male	40.6%
Female	59.4%
Duration of practice (years)	1-25
Provinces represented	8
Work place	
Both Government and private sector	90%
Only government sector	6.7%
Only private sector	3.3%



Graph 1. Appropriateness of investigations requested by GPs.

Table 2. Views of radiologists on quality of request forms/letters

<i>Aspect</i>	<i>Satisfactory</i>	<i>Average</i>	<i>Not satisfactory</i>
Content	9.7	38.7	51.6
Legibility	3.2	67.7	29.1
Format	6.5	51.6	41.9
Paper quality	12.9	58.1	22.6

Table 3. Items of information expected by radiologists in request forms in general

<i>Items of information</i>	<i>Always</i>	<i>If relevant</i>	<i>Not required</i>	<i>Not sure</i>
Date	93.5	6.5		
Urgent or routine	45.2	45.2	9.7	
Recipient's name	63.3	33.3	3.3	
Recipient's place of work	22.6	45.2	29	3.2
Pt's Name	96.8		3.2	
Pt's age	96.8		3.2	
Patients gender	90.3	6.5	3.2	
Reason for investigation	100			
Brief history	96.8	3.2		
Examination findings	77.4	22.6		
Investigation findings	54.8	45.2		
Probable diagnosis/ses	77.4	22.6		
Sender's name	83.9	16.1		
Sender's address	36.7	23.3	36.7	3.3
Sender's telephone No.	32.3	38.7	22.6	6.5
Sender's qualifications	76.7	23.3		
Sender's signature	90.3	6.5		3.2
Sender's rubber stamp	77.4	6.5	12.9	3.2
<hr/>				
Other; Previous imaging findings				

Table 4. Specific items of information expected in a request for ultra sound scan of thyroid

<i>Item of information</i>	<i>Always</i>	<i>If relevant</i>	<i>Not required</i>
Enlarged or not	31.3	37.5	31.3
Nodules felt or not	40.6	43.8	15.6
Thyroid function tests	40.6	56.3	3.1
<hr/>			
Other; Previous USS reports & FNAC reports			

Table 5. Specific items of information expected in a request for Duplex scan of lower limbs

<i>Item of information</i>	<i>Always</i>	<i>If relevant</i>	<i>Not required</i>
Arterial or venous	100		
If arterial presence of peripheral pulses	65.6	15.6	18.8

Table 6. Suggestions to improve communication and coordination between radiologists and primary care doctors

<i>Action</i>	<i>%</i>
Introduction of structured forms	86.7
Continuous medical education (CME) among GPs	84.4
Enhance direct communication	56.3
Joint continuous professional development programs (CPD)	51.6

Comments of radiologists

Radiologists stated that they would value feedback from the referring GP after a final diagnosis was reached. They suggested that the GP should consult the radiologist in the situation that the most appropriate choice of imaging investigations was not clear and prior to requesting unfamiliar investigations so that the optimal investigation could be selected.

Discussion

This study explored views of radiologists regarding referral of patients for investigations by primary care doctors. Studies on the views of radiologists on referral of patients by GPs in Sri Lanka are scarce. Primary care doctors in Sri Lanka, are therefore unaware of the views of radiologists if the investigations they request are appropriate, information provided is adequate, preferred methods of communication and avenues for improvement.

Altogether 120 radiologists across the country were invited for the study but only 32 responded. This response rate is on par with other studies which have used postal/email surveys for data gathering. This was a better response rate compared to an earlier postal survey which explored views of specialists on referral letters of GPs in Sri Lanka¹⁷. Participants were radiologists practicing in 8 out of 9 provinces in the country, in government and private sectors, both genders, senior as well as recently qualified radiologists.

It was encouraging that the majority of radiologists (41% – satisfactory, 47% – average) considered investigations requested by GPs to be appropriate. That shows their knowledge on selecting an investigation for a particular patient or the condition is reasonably good.

Radiologist's satisfaction regarding content, format, legibility and paper quality of request forms/letters was low. Radiologists were most disappointed with the content of the referral letters. When required information is not provided to the radiologist, interpretation of a finding would become problematic and could lead to delays in diagnosis and treatment. Retrieval of information becomes time consuming when format and legibility are not satisfactory. It can even lead to irritation and dissatisfaction of the radiologist. Paper quality reflects on the GPs enthusiasm in practice management and use of poor quality paper reflects badly on the GP. A previous study which explored views of specialists on referral letters sent by GPs also revealed that content, format, legibility and paper quality were not up to the standard¹⁸. Therefore GPs should seriously consider how they could improve the quality of their request forms.

Radiologists in Sri Lanka expect comprehensive letters/forms when patients are referred for investigations. They expect request forms to include details of the condition, investigation results including previous imaging reports and identification and contact details of the patient, radiologist and GP. It is time consuming to include all the details and therefore ways and means should be explored as how this information could be provided by a busy practitioner without spending much time.

Introduction of structured request forms was the

method suggested by most of the radiologists to improve communication between GPs and radiologists. That is a solution for the deficiencies in request forms identified in this study. That will enhance the format, reminds the doctor as what information should be included thus preventing omissions, facilitates quick retrieval of information as radiologists can look at the subheadings and retrieve necessary information. Since minimal number of words have to be hand written in such a form it is a solution to poor hand writing as well.

The two structured forms (Figure 1 & 2) prepared by the investigators received a very high approval rate from radiologists. They insisted that previous imaging reports should be included in the formats. Therefore the formats were included subheading and space for previous imaging results (Figure 1 & 2 text in red). Another suggestion was space for relevant past medical/surgical history. If an USS of abdomen is requested for a patient who has undergone hysterectomy, oophorectomy or appendectomy providing that information will ease the job for the radiologist. Similarly if a chest xray of a lady who has undergone mastectomy needs reporting that information should be provided to the radiologist. Such items of information are readily available to the GP if the person has been a regular patient. Referral form formats were modified according to the views of the radiologists (Figure 1 & 2 text in red).

Radiologists also suggested (84%) that CME among GPs could help improve the quality of referrals for imaging. CME will refresh knowledge on appropriate investigations for particular conditions and impart knowledge on newer methods of investigations, preparation of patients etc. Joint CPDs were also suggested by more than 50% which is comparatively lesser number compared to CME among GPs. An opportunity to meet radiologists and discuss the issues will be of immense benefit to GPs and apart from knowledge practical issues can be sorted out in such forums. Perhaps time constraints and other commitments would have prevented others suggesting joint CPDs for better coordination and communication.

More than 50% were of the view that direct communication would be of much benefit to the patients. That will be important when GPs deal with unfamiliar conditions and when they have to order unfamiliar investigations. In such instances optimal investigation could be decided by discussion with a radiologist. Direct communication will be of benefit when radiologists want additional information to interpret their imaging findings also. While consultants were particular that referrals should be addressed to a specific named specialist they were also interested in knowing the referring physicians name and qualifications. Opinions were divided regarding the need to include the referring doctors address and contact number. However, appreciating some radiologist's enthusiasm for direct communication a space for the mobile number of GP was included in the structured format (Figure 1 & 2 text in red).

One of the comments made by some radiologists was they liked a feedback from GPs when they arrive at a final diagnosis. Reason mentioned was

“imaging findings are not pathognomonic most of the time and we are able to generate a list of likely differential diagnoses. Therefore, it is important whenever possible to have a feedback”. Direct communication should be encouraged for that to happen and will enhance the interpretation skills of radiologists. Such communication will also strengthen rapport between GPs and radiologists.

Conclusions

This study reveals factors that influence the quality of GP referral to radiologists for imaging investigations. It is important that GPs use imaging appropriately to ensure timely and safe patient management. The study identifies several strategies that help make the referral process more efficient.

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