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Letter to the Editor and Reply

Radiology OPD: A new model for radiology referrals in modern healthcare

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Introduction

"A disease diagnosed is half-cured"! This quote by Thomas Fuller correctly highlights the importance of correct diagnosis in clinical medicine and emphasizes the role of radiology as the backbone of modern healthcare. There are instances in which patients visit the out-patient department [OPD] with previous consultations, laboratory and imaging reports, and uncertain diagnoses. Despite the work-up elsewhere, the diagnosis remained unclear, and treatment was ineffective, and the patient remained a continued diagnostic challenge.

The key reasons may be an incorrect approach to diagnostic work-up or sub-optimal scan quality or inappropriate interpretation by a radiologist working in a clinical vacuum. This may also be due to a lack of a comprehensive approach to the patient's problem, which is not unusual in modern healthcare, as it has become overly specialized and often fragmented. Specialization in Medicine is certainly necessary to delve deep into the vast sea of knowledge, but maintaining a working knowledge across specialties is crucial. When closely examining a single tree, one should not lose sight of the forest [1].

Value is the most important factor in defining the effectiveness of healthcare delivery which may be translated as product of patient experience and the clinical outcome [2]. 'Value-based healthcare' aims to improve individual healthcare outcomes with appropriate use of resources without increasing costs. A multi-society expert statement clearly defined the role of Radiology in a 'Value-based healthcare' [3]. Accordingly, radiologists may need to gradually adopt 'value-based practice' rather than the 'volume-based practice' to positively impact patient care and outcomes. A triad consisting of a primary care group, a radiology group,

and a clinical laboratory is likely to solve 90% of the diagnostic dilemmas in routine clinical practice [4]. Four components which should be integrated in the clinical radiologist's work profile are – review of the imaging requests to assess appropriateness, scan monitoring to ensure quality, interpreting/reporting and consulting with referring clinicians and patients [5]. Three out of four components are often missing and should be addressed.

With an objective to address this problem and to bridge the stated gaps, we initiated a pilot project in the department of Radiology at Indraprastha Apollo Hospital, New Delhi, India – Radiology Out-Patient Department [OPD].

Contents

The project created an additional referral pathway for the clinicians refer patients to the department of Radiology (Figure 1).

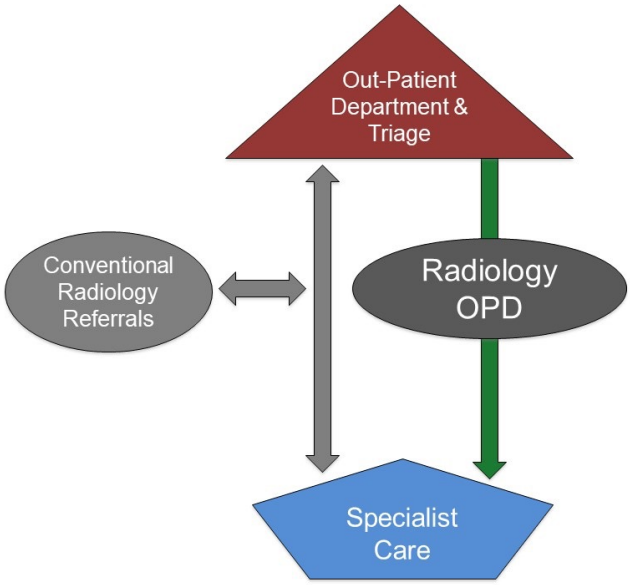

Figure 1. *shows the outline of the workflow in the Radiology department, whereby the radiology OPD serves as an additional alternative pathway for the patient referral from the outpatient department/triage to specialist care. The conventional radiology referrals remain unchanged and continue to serve as before. As per the new model, the referring clinician will decide the preferred referral pathway based on the patient's clinical profile.*

Accordingly, in case of patients presenting with a diagnostic challenge or an uncertain diagnosis, the clinician may decide to refer them to radiology OPD for a detailed diagnostic work-up without advising any imaging studies themselves. These patients consult radiologists in radiology OPD. The radiologists review the complete clinical history, previous laboratory reports and imaging studies and accordingly discuss the diagnostic workup and advise the most appropriate imaging study. Radiologists supervise the imaging study to ensure a correct and 'individualized' protocol for maximum diagnostic benefits. Radiologists then interpret the results, in correlation with the clinical presentation and compare it with the prior scans to reach the most possible diagnosis. Radiologists explain the results and implications and potential treatment options to patients and subsequently discuss the cases with the referring clinicians and assist in the treatment/surgical plan.

Radiology OPD is not planned or designed to replace the 'conventional referral pathway' where patients are referred to the radiology department for a specific imaging study. Radiology OPD is meant for the select group of out-patients [not for in-patients] who presents with persistent diagnostic uncertainties. Unlike the conventional referral pathway, patients visiting the Radiology OPD need to pay the additional consultation fee apart from the charges for imaging studies. The charges for imaging studies remain unchanged in the two pathways. The decision to select the patients for each referral pathway depends on the clinician, under the patient's consent.

Till date, a total of 56 patients (32 males and 24 females) attended the radiology OPD in 4 months for varied clinical indications. The review showed high diagnostic accuracy (>95%) with reasonable turn-around times (24-48 hours] without any inappropriate scans or scan repetitions. These included patients showing high satisfaction rates for the 'personalized' radiology services. The overall impact over the clinical course of the disease was found to be favourable till the time of this analysis.

Direct patient consultation in Radiology is likely to be a giant leap towards the 'patient-centric approach' in healthcare. Several studies have reported higher patient satisfaction rates and improved compliance with the follow-up scans when they get the chance to understand their imaging results from the reporting radiologists [6,7]. Diagnostic radiology consultation clinic was integrated into the everyday workflow at the Department of Radiology, Massachusetts General Hospital and Harvard Medical School, Boston, US which reported a high level of patient satisfaction and improved understanding of the role of a radiologist [8]. Unlike our model, this clinic was, however, confined to the communication of the most recent study findings and still missed two out of the four components of the clinical radiologist's work profile [5]. In our model, the diagnostic radiology consultation is chargeable which does not adversely affect the radiologist's productivity and the hospital's revenue.

Few referring clinicians may be apprehensive about the direct communication of imaging results to the patients by the reporting radiologists [9]. Radiologists should seek to establish a mutually agreeable practice while initiating such a diagnostic radiology consultation clinic.

Radiological Society of North America and American College of Radiology have launched campaigns to help radiologists adopt a more patient-centred practice. These campaigns have emphasized the role of direct patient consultations to improve the patient's experience and to enhance the value of healthcare [10,11].

Even though radiologists are conventionally seen as 'doctors' doctors', the evolution of radiology and demand for 'value-based healthcare' will gradually transform them into 'patients' doctors'. This was also stated in an AJR editorial, dated back in 1977 [12] and is even evident in our new model for radiology referrals and consultations.

'Radiology OPD' will allow radiologists to review the imaging appropriateness, scan monitoring, clinical interpreting/ reporting and consulting with the referring clinicians and patients. This comprehensive 'patient-centric' model is expected to enhance patients' experience, improve outcomes, minimize unnecessary scans and allow a transition of radiology from a 'volume-based' to 'value-based' approach.

Conclusion

The pilot study based on this new model of 'Radiology OPD' showed promising results with significant positive impact on the clinical course in outpatient department settings in our hospital. By providing a comprehensive review of patient information and tests conducted in a radiology outpatient clinic, we improved patient outcomes, reduced repetition and wastage and thereby reduced our greenhouse gas emissions. We believe it will pave the transition from a volume-based to value-based approach in healthcare, enhance clinical outcomes and even elevate the radiologist's profile.

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Reply to Letter to the Editor

I refer to the Letter to the Editor, Radiology OPD: A new model for radiology referrals in modern healthcare by Dr. Nitin Ghonge. I read with interest this pilot project of a radiology outpatient department [OPD] where direct referrals are made to the experienced radiologist whose primary aim is to try to solve the diagnostic conundrum for the patient and the referring doctor. Congratulations to the author and those in the team that brought this project into fruition as it is value-based radiology in action and definitely improves patient outcomes whilst reducing any unnecessary or inappropriate testing. The latter contributes to environmental sustainability in radiology and reduces costs for the payor.

A few features of this model exemplify radiologists as clinicians [1,2,3,4]. Radiologists used to more regularly have face to face discussions with referring doctors, especially prior to digitization with Picture Archiving and Communication System (PACS) and higher sectional imaging workload volumes. The referring doctors would discuss their patients with radiologists who had the full range of the clinical information including all prior diagnostic tests and previous imaging for comparison. Whilst with electronic medical records, it is theoretically possible and advisable to check the patient's medical history, in reality, the time taken and tediosity of the process may make it challenging in a very busy setting.

Another aspect is patient communication – actually talking to patients about their complaints and obtaining a history that would help radiologists decide on the most appropriate imaging related investigation and improve interpretation of the imaging study [5,6] Radiologist-patient: explaining what next diagnostic imaging tests will be done, why, what to expect and subsequently talking to the patient about the findings/results also improves patient satisfaction and outcomes [5,7].

Finally, in this radiology OPD model, radiologists are paid for their consultation time. In many situations, this may be more difficult to implement as challenges include the reimbursement models whether government, insurance or self-payment (out-of-pocket) and fee-for-service interpretation of studies, reading

workload and shortage of radiologists. However, the author has shown that it is possible for radiologists (not just interventional radiologists) to have a consultation clinic particularly for diagnostic challenges. I look forward to more centres in Asia adopting or at least trialling this model that will raise the profile of radiologists and make them visible once again.

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