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Short Communication

Radiographers will always Report on X-ray Films in a Task-specific and Constrained Manner: An Analytical Conversation

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ABSTRACT

The number of radiologists is still very low especially in developing countries. It becomes even worse in the rural areas where there are no radiologists at all. Radiographers are the first people to contact patients who need X-ray services and clinicians often first contact radiographers to offer an opinion. Many patients have died simply because the radiographer has not alerted the clinician of an emergency due to limited training. Therefore, training radiographers to interpret on some selected X-ray images has become a necessity. However, owing to their limited medical knowledge, there is still debate that radiographer reporting will always remain limited and only task-specific.

Keywords
X-ray films; Radiographers; Patho-physiology; Diagnostic tests; Anatomy; Histology; Physiology

In this discourse, the term `radiographer` has been used to refer to those technologists that traditionally are supposed to operate the X-ray machine and produce X-ray images for the radiologist to report. These radiographers were previously not trained to interpret X-ray images, though there are current trends where the radiographers especially at post-graduate level are trained to interpret some selected X-ray images. This discourse has been contextualized from the perspective of a developing country from Sub-Saharan Africa where the title `radiographer` is used. However, some of the observations pointed out may be of greater interest to not only the other developing nations, but also to the more developed world to stimulate debate as to whether radiographers should actually be trained and allowed to report on some selected X-ray images cognizant of key legal implications that may arise as a result of this decision.

Often, patients have gone for long hours without reports on their films even in accident & emergency departments (A&E) where reports should be issued immediately.[1-3] Reporting by radiographers has been initiated partly due to the increasing work load in X-ray departments and the shortage of radiologists.[4,5] By extending this role to radiographers, it is believed that patients would be served better and quicker. The need for radiographers to report on images was observed as early as 1968 arising out of the fact that there were few radiologists and only less than 30% of medical students wished to pursue radiology as a career.[6] Since then, this need has continued to be emphasized over time.[7,8] However, despite the historical and current trends in advocating for radiographers to report on some selected X-ray images, they lack adequate medical knowledge and skills to provide reports. The proceeding discourse is based upon the observation by Donovan and Manning[9] that ``*successful reporting by….radiographers will always be task-specific and limited in scope*``. Throughout the discussion, reference will be made to the appendicular skeleton.

Limited knowledge in medical disciplines is the major obstacle for radiographers wishing to take on reporting plain X-ray images.[9] Radiologists are able to apply clinical reasoning drawing on the medical training they received to interpret X-ray films in a given clinical context. Consequently, radiographers are likely to be limited in the scope of their reporting. The observation by Donovan and Manning[9] that reporting by radiographers will remain limited in task and scope therefore seems to be justified due to the following reasons.

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Medical disciplines like anatomy, histology and physiology are not taught to radiographers in detail. Other disciplines like pathology, micro-biology, pharmacology, biochemistry and disease epidemiology are never taught at all. Limited knowledge in these medical subjects is a major challenge for reporting radiographers, because their clinical reasoning of the patient`s condition is limited.[10] Radiographers can at times fail to know what to look for on an image and the reasons why they should look for it. Sometimes radiographers fail to interpret the context of the examination and lack the expertise to relate image findings to the clinical context. All this is because of limited medical knowledge which is needed to get an effective opinion on an image. When faced with clinical situations that need application of medical knowledge, the radiographer may be unable to do this.[11]

There are several examples to illustrate this limitation in medical knowledge: In evaluating a fractured radius, a reporting radiographer may have been taught to search for presence of fat pads. However, such a radiographer may lack medical knowledge of the patho-physiology that leads to the fat pads. In another example, much as trained radiographers may recognize a tumour presence in the humerus, they might be limited to just describing what they are observing, whereas as a radiologist relies on the medical knowledge of tumour pathology to describe patterns and even look out for areas of possible spread. In another example, a radiographer may fail to associate steroid therapy used in asthma with loss of bone density in the appendicular skeleton,[12] which requires knowledge of pharmacology. This therefore justifies limiting the scope.

Secondly, reporting on appendicular images requires radiographers to interpret and understand medical provisional diagnoses made as well as clinical information provided by the referring clinicians. This information gives useful schemas to interpreting images. It provides history of the patient`s condition which needs to be interpreted in relation to the image. Such information may include: patient`s age, gender, occupation, origin, medical history, etc. Certain disease patterns are associated with different types of people, gender or even age. Some fractures are more likely to be seen in certain age groups or in certain categories of people. Steroid drugs used in asthma may cause loss of bone density in appendicular skeleton.[12] However, radiographers are never trained in clinical medicine and therefore lack knowledge and skills to effectively apply this epidemiological data.

It is increasingly becoming difficult for clinicians to give in-depth clinical information on X-ray request forms partly due to increased patient load. Subsequently, radiographers may need to solicit for more clinical history from patients as they interpret images. Radiographers are disadvantaged because they were never trained in clinical clerkships like radiologists. Although radiographers can talk to patients to justify examinations and views to be taken, they may not be able to solicit for deeper relevant clinical history pertaining to the condition as a way of assisting them to interpret the image. Radiologists sometimes arrive at their conclusions after re-taking patient`s history. Asking relevant clinical questions to guide their interpretation is a skill many radiographers may possibly not have in sufficient depth.

Radiographers may also lack the needed skills in basic physical examination. Taking an example of limbs, there are various limb movement tests radiologists can use to give them clues on what type or which part of a bone is injured and relate this to the radiographic image appearances. This they are able to do because of their medical background in testing limb movements. Although radiologists do not do this all the time, they may at times rely on such skills especially in challenging interpretation scenarios. Many radiographers are never taught such skills which may disadvantage them in these situations.

In addition, majority of the radiographers may not be adequately trained to interpret medical diagnostic laboratory investigations that the patients present with. Deeks[13] observes that in many cases, radiologists combine their ability to interpret test results such as endoscopy, pathological, histological and biochemical laboratory tests (like, WBC, RBC, ESR) to guide their evaluation of images. Since radiographers never receive in-depth training in interpreting diagnostic laboratory tests, this may sometimes limit their ability to relate image findings to laboratory tests.

Lastly is the inability to effectively communicate results and suggest appropriate and acceptable recommendations. Owing to their limited medical knowledge, radiographers may find it difficult to identify clinically relevant information to include in the X-ray reports. This could potentially lead to over or under diagnosis which may be detrimental to the patient. It may also possibly lead to unnecessary recommendations for further investigations. Recommending for other investigations may require one to have medical knowledge of how such an investigation will assist in patient management. Recommendations in a radiological report may also include such things as suggesting alternative treatment or drugs. Radiographers are in most situations not in position to do this since they never train in pharmacology, which could further limit their reporting tasks.

There are several limitations for radiographers to report on X-ray images. However, in places where there are no radiologists at all, clinicians still call upon radiographers to give an opinion. This is true for many developing countries. Therefore, despite the many limitations for radiographers in as far as reporting on X-ray films is concerned, the debate needs to focus on perhaps limiting their scope of reporting to only specific cases and then train them to refer the rest of the cases to the radiologists. The argument that radiologists are few is not justification enough for radiographers to report on all X-ray images. This is because the responsibility of giving out an authentic X-ray report still lies with the radiologist. In addition, the radiography regulatory bodies and professional councils may not be ready to handle this extra responsibility of licensing and regulating reporting radiographers. Subsequently, this is likely to result into legal litigations if the X-ray report by the radiographer leads to patient mismanagement. Furthermore, allowing radiographers to report would mean that the radiography training period should be increased so that reporting modules are included in the curriculum. This also has financial implications and one cannot be certain that radiographers will be ready to take on more years of rigorous training in order for them to be able to competently report on X-ray images.

Although the intention of this discussion is to open up debate around this subject, one should be cognizant of the fact that the radiologist has the ultimate responsibility to the patient and not the radiographer. The radiographer just assists the radiologist to fulfil this role. If radiographers are to take on any form of reporting roles, they should be directly under the supervision of a radiologist on duty. Rather than advocate for radiographers to report on all X-ray images, one would perhaps begin by advocating for the training of more radiologists or for remunerating radiologists better so that they are attracted to rural health settings. In addition, radiographers should perhaps only be limited to identifying abnormal X-ray patterns and raising a flag for the radiologist to confirm and write a competent report later on.

One would also probably just limit radiographers to interpreting certain types of X-ray images such as fractures in A&E departments. Therefore, before one can propose ways of making radiographers to ably report on X-ray images, the focus should rather be on proposing ways of making radiographers work closely with the radiologists in a collaborative manner for the benefit of the patient. Efforts by policy makers should be put on creating an enabling environment for attracting more radiologists to places where they are not found and also attracting more medical doctors to take on radiology as a specialty.

There are various training models that have been presented to equip radiographers with basic image reporting skills. The College of Radiographers of the UK[11] for example recommends that radiographers should be taught skills to interpret basic medical laboratory diagnostic tests that may appear in clinical notes. In addition, there is need to introduce aspects of film reporting at undergraduate level for radiography students. This is likely to open up opportunities for further training on a wide variety of film reporting for interested radiographers at postgraduate level. Even for the already qualified working radiographers, the key factor to consider is continuous professional development (CPD) in reporting skills. Radiographers should be given time, opportunities and support to pursue postgraduate courses in film reporting. CPD can also be achieved by allowing qualified reporting radiographers to attend conferences, workshops, seminars, clinics and educational sessions within departments. By participating in all these activities, radiographers can get exposed to various reporting tasks and eventually acquire more knowledge, skills and experience. Imaging departments should also perhaps allocate radiology mentors to those radiographers who are training in reporting. The mentors could be radiologists or senior reporting radiographers. The role of the mentors would be to supervise the reporting radiographer, arrange tutorials with them and to check all reports for quality in relation to the image, patient`s condition and clinical history before flagging them off.

However, despite the various training programmes proposed, ultimately, the radiologist is responsible for the patient and at the moment, it should remain like this with the radiographers playing a supporting role in the interpretation to avoid any legal implications of opening X-ray image reporting by the radiographers. Therefore, reporting by radiographers is likely to remain limited in scope due to the nature of their training that does not equip them for this role. More ways still need to be identified on how to make radiographers competent in reporting before they can be fully allowed to report by the regulatory bodies in the various countries.

REFERENCES

1. Piper K. Clinical reporting in radiography. Proceedings of the 75th Anniversary Conference of The Society and College of Radiographers. 1995.

2. College of Radiographers. Statement for professional conduct. London, UK: The College of Radiographers. 2002.

3. James MR, Bracegirdle A, Yates W. X-ray reporting in accident and emergency departments: An area for improvements in efficiency. *Arch Emerg Med.* 1991; 8(4): 266-270.

4. Paterson AM, Price RC, Thomas A, Nuttall L. Reporting by radiographers: A policy and practice guide. *Radiography*. 2004; 10(3): 205-212. doi: 10.1016/j.radi.2004.03.004

5. Woznitza N. Radiographer reporting. *J Med Radiat Sci.* 2014; 61(2): 66-68. doi: 10.1002%2Fjmrs.51

6. Lodwick GS. The new image of diagnostic radiology. *Radiology*. 1968; 91(5): 1045-1047.

7. Monu JU, Hewlett V, Ostlere S. International Skeletal Society outreach in Sub-Saharan West Africa. *Skeletal Radiol.* 2011; 40(3): 251-254. doi: 10.1007/s00256-010-1084-0

8. Mubuuke AG, Businge F, Kiguli-Malwadde E. Factors influencing students` choices in considering rural radiography careers at Makerere University. *Radiography*. 2010; 16 (1): 56-61. doi: 10.1016/j.radi.2009.09.003

9. Donovan T, Manning DJ. Successful reporting by non-medical practitioners such as radiographers, will always be task-specific and limited in scope. *Radiography*. 2006; 12 (1): 7-12. doi: 10.1016/j.radi.2005.01.004

10. Price RC, Le Masurier SB. Longitudinal changes in extended roles in radiography: A new perspective. *Radiography*. 2007; 13 (1): 18-29. doi: 10.1016/j.radi.2005.11.001

11. College of Radiographers. Radiography and the scope of practice. London, UK: The College of Radiographers. 2003.

12. Manolagas S, Weinstein R. New developments in the pathogenesis and treatment of steroid-induced osteoporosis. *JBMR*. 1999; 14(7): 1061-1066. doi: 10.1359/jbmr.1999.14.7.1061

13. Deeks J. Systematic reviews of evaluations of diagnostic and screening tests. In: Egger M, et al (eds). *Systematic Reviews in Health Care: Meta-Analysis in Context*. London, UK: BMJ Publishing Group. 2001.