

CHALLENGES AND RESPONSE OF RADIOLOGY RESIDENT TRAINING PROGRAM TO THE IMPACT OF GLOBAL PANDEMIC OF COVID-19

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ABSTRACT

The disease caused by novel coronavirus SARS-CoV2 (COVID-19) is declared as a global pandemic by World Health Organization (WHO) in March 2020. It is evolving rapidly around the globe including Pakistan creating a major impact on the life of individuals including health care professionals. Pakistani healthcare workers have been badly affected by coronavirus. It has completely disrupted the personal and professional lives of health care workers especially post graduate residents, including radiology residents. Apart from preparing radiology departments to ensure their proper functioning at this time of emergency, academic institutions face an additional challenge in terms of training of their radiology residents and halts in radiology residency program. This study will highlight challenges being faced by radiology residents from this global pandemic in terms of learning and safety aiming to offer solutions and provide guidance. We hope this study will serve as a basis for radiology resident training program leadership to evaluate the challenges faced by the training program and to proactively address the issues.

Keywords: Radiology residents, COVID-19, impact, challenges, global pandemic.

Introduction

The disease caused by novel coronavirus SARS-CoV2 (COVID-19) is declared as a global pandemic by World Health Organization (WHO) in March 2020.¹ It is evolving rapidly around the globe including Pakistan creating a major impact on the life of individuals including health care professionals. According to a media report, Pakistani healthcare workers have been badly affected by coronavirus constituting 2.5% of the total number of cases.² It has completely disrupted the personal and professional lives of health care workers especially post graduate residents, including radiology residents. Apart from preparing radiology departments to ensure

their proper functioning at this time of emergency, academic institutions face an additional challenge in terms of training of their radiology residents and halts in radiology residency program.³ There is very limited data available on the impact of COVID 19 among radiology residents in Pakistan. A few international studies like Alvin et al and Chong A et al have shown the impact of COVID-19 on radiology residents internationally but more local studies are required to understand the situation within the country.^{4,5} Therefore, this study will highlight challenges being faced by radiology residents from this global pandemic in terms of learning and safety aiming to offer solutions

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PATIENT, STAFF AND WORKPLACE SAFETY:

As this global pandemic is rapidly evolving, health care workers are getting infected at a high rate, the numbers are quite alarming in Pakistan constituting 2.5% of the total number of COVID 19 cases.² This has resulted in loss of doctors due to disease and quarantine thus further straining an already stressed and compromised health care system. It is of utmost priority to ensure the health and safety of radiology residents in this emergency situation.

Radiological society of Pakistan has devised specific guidelines for functioning of radiology departments all across the country to ensure safety of patients and radiology residents.⁶ It is important that all the residents should be aware of, trained and equipped with infection protection. Knowledge of infection control, such as proper donning and doffing of personal protective equipment, its proper disposal etc. should be refreshed. Short online trainings should be conducted for proper education of staff. Hand-washing should be also advocated. The safety guidelines are readily available on official website of radiological society of Pakistan. These should be readily available and displayed in radiology suites and the supervisors should advocate and ensure their implementation. Risk reduction measures also include practicing social distancing to decrease infection transmission. These practices may include separating the workstations by six feet, decreasing in-person consultation, identifying and deploying new workstations.⁷ Phone numbers of residents and reporting consultants can be made available on all displayed duty rosters as well as on doors of reporting rooms so as to further maintain social distancing. Radiology trainees who are immunocompromised and therefore are at high risk of contracting infection can be allocated remote working stations to avoid social interactions. In addition elective examinations can be postponed catering only procedures which need urgent care. Radiology resident training program directors and leaders should also sensitize and train their residents to ensure the safety of their accompanying staff on workstations including technicians,

nurses and paramedics. In case they incidentally report positive findings on a chest X ray or CT scan of a patient not suspected of COVID-19, they should inform the staff immediately to take necessary actions regarding disinfection and possible exposure. Backup teams and rosters should be formulated in case a resident contracts infection and falls ill or is quarantined.

RESIDENTS EDUCATION AND LEARNING:

Measures to promote physical distancing have disrupted the traditional method of teaching at workstations between the residents and their seniors. This is particularly affecting the learning of junior residents. This hurdle may be overcome by more tele-radiology sessions between the residents and faculty and virtual learning.^{8,9} Conferences, interdisciplinary meetings, morning meeting sessions are either completely cancelled or replaced by virtual training. Apart from transitioning training to a full virtual program, trainees should also be provided with online learning sources offered by different institutes and radiological societies (Tab. 1).

Association of University Radiologists	https://radiologyresidentcorelectures.com/
American College of Radiology	https://www.acr.org/Lifelong-Learning-and-CME/Learning-Activities/Residency-Training-Hub
RSNA	http://education.rsna.org/diweb/catalog https://www.rsna.org/-/media/Files/RSNA/Education/Educator-resources/Patient-centered-care-learning-set/rsna-pcc-modular-learning-set.ashx
Radiology Assistant	https://radiologyassistant.nl/
Radiopedia (free for developing countries)	https://radiopaedia.org/
Learning radiology	http://www.learningradiology.com/
European school of Radiology	https://www.esor.org/cms/website.php
MEDNAX Radiology Education	https://www.vrad.com/course-series/free-radiology-cme-webinars/
#FOAMrad (Free Open Access "Medu- cation" radiology) resources- compiled by Patricia Balthazar, MD, Radiology Resident, Emory School of Medicine	https://docs.google.com/document/d/15_Bh4fAsbpdrcrYjQvin6w-sZZ0WAwHtBn2w-va_mHQ/mobilebasic?urp=gmail_link

Table 1: Online learning sources for Radiology residents

During this time of social distancing, residents should be encouraged to come up with innovative ideas of research that are feasible to be carried out during this pandemic, acquiring research grants etc. As in many institutions, IRB meetings are postponed or cancelled; residents should be motivated to reshape their halted research work into publishable form so as not to lose time.

Many of the mandatory training rotations are either cancelled or postponed in all the specialties including radiology.^{10,11} Moreover exams have also been postponed. This will change and reschedule the entire residency training program resulting in delayed post-graduation and even delayed induction of new residents. Radiology leadership should proactively take up and address this issue.¹²

RESIDENTS LEARNING OF RADIOLOGICAL MANIFESTATIONS OF COVID-19:

RT-PCT testing is the gold standard for diagnosing COVID-19.¹³ It is found in recent studies that it has a low sensitivity of 61-70% for diagnosis COVID-19.^{14,15,16} Recent literature shows that chest CT can be used an important imaging modality both for diagnosis and monitoring progression of COVID-19 having a sensitivity of 98%.¹⁵⁻¹⁷ Keeping this in view, the radiology training program should specifically emphasize to sensitize and educate their residents regarding chest X ray and CT manifestations of the disease. Moreover structured standardized reporting templates should be developed to report these cases.

PSYCHOSOCIAL WELLBEING OF RESIDENTS:

The global pandemic of COVID-19 has brought in huge psychological unrest and mental stress to the entire world.¹⁸ Health care workers all around the globe including Pakistan are under immense physical and mental stress due to high exposure to infection, lack of personal protective equipment, long working hours, being away from family and physical exhaustion.¹⁹ Radiology residents are also affected by this global crisis. Residents are not only afraid of contracting the infection but also fear of carrying it to their homes exposing their family members especially their parents and children. This challenge can be overcome by developing effective communication channels that can promptly address the concerns of healthcare workers including personal protective

equipment; testing, self-isolation etc. back-up rosters in case of personal emergencies should be in place. Although physical distancing is vital for prevention, it should not result in social isolation. Residents should remain connected via social media and online portals. They should spend healthy and quality time with friends and family maintaining essence of social distancing.

Conclusion

The impact of global pandemic of COVID-19 is huge on radiology residents in Pakistan and is increasing as the number of cases is rising. Since pandemics are self-limited, it is not clear to date that when will the current pandemic end. Radiology residency program leadership should devise a plan to meet the challenges faced by Radiology residents maintain a workforce that can play its role in this global pandemic while at the same time also meeting their educational needs. Without creating panic, we can stay together and create solutions to promote safety, learning and psychosocial wellbeing.

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