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Practice, Policy & Education

Radiology residency program management post-pandemic-peak: looking down the curve and around the bend[☆]Eric England^{a,*}, Sheryl Jordan^b, Alisa Kanfi^a, Maitray D. Patel^c^a University of Cincinnati Medical Center, Department of Radiology, 234 Goodman Street, Cincinnati, OH 45219, United States of America^b University of North Carolina School of Medicine, 321 South Columbia Street, Chapel Hill, NC 27599, United States of America^c Mayo Clinic, Department of Radiology, 5777 E. Mayo Blvd., Phoenix, AZ 85054, United States of America

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ABSTRACT

The three stage model set forth by the ACGME, which provides a framework for pandemic residency program management, is insufficient and could best be expanded to 5 stages to include post-pandemic-peak residency program management. Stage 4, “Increased non-COVID clinical demands,” present the challenge of an increased clinical workload in the setting of social distancing while reengaging the educational mission of the residency program. In Stage 5, “Business as usual, redefined,” the residency program must learn to adapt to new challenges including uncertainty surrounding the American Board of Radiology (ABR) Core examination, uncertainty in the job market, and potential diminished medical student interest in radiology. Despite these challenges, this post-pandemic environment offers tremendous opportunity to build on and enhance the residency program now and into the future.

1. Introduction

As of this writing, COVID-19 has infected tens of millions of individuals, caused hundreds of thousands of deaths, and upended academic healthcare's clinical, education and scholarly missions [1]. Its toll on work life, home life and the global economy is unequalled. The Accreditation Council for Graduate Medical Education (ACGME), the body which accredits Sponsoring Institutions and dedicates resources to initiatives important in graduate medical education (GME), adopted a 3 stage model as the conceptual framework to facilitate effective residency program management in the face of the COVID-19 pandemic: Stage 1—“Business as Usual”; Stage 2—“Increased Clinical Demands”; and Stage 3—“Pandemic Emergency Status” [2]. In ACGME Pandemic Stage 1, no significant disruption of patient care and educational activities occur as departments plan for increased clinical demands. In Stage 2, some trainees may shift to pandemic-related patient care duties and some educational activities may be suspended, but programs remain responsible for upholding ACGME requirements to ensure patient and trainee safety and well-being. In Stage 3, the emphasis is on survival – literally; each program must still meet ACGME requirements while ensuring residents receive adequate resources, full training in

infection prevention and adequate supervision [2].

The authors' observations are that for radiology residencies, (and arguably many other specialties' training programs), the ACGME model is incomplete; a more effective framework is expanded to five stages to account for considerations of effective program management after peak pandemic. In this manuscript we proffer observations and suggestions for post pandemic peak program management by describing Stage 4—“Increased Non-COVID Clinical Demands” and Stage 5—“Business as Usual, Redefined”. As with the original ACGME stages, transitions between stages are not abrupt and each stage is not entirely compartmentalized; nevertheless, we believe these added stages prove topical and imperative as an expanded framework for residencies and leadership.

2. Stage 4 increased non-COVID clinical demands

While clinical, educational, and well-being impacts in Stage 1–3 have been well-documented [3], our proposed Stage 4 offers guidance to radiology residencies previously in Pandemic Emergency Status. Stage 4 introduces requirements to maintain social distancing but increase patient encounters, resulting in lengthened work days which

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may be spread over multiple sites. Conceived as a solution to canceled appointments and delayed medical needs during the COVID-19 peak, work assignment changes to meet the post-peak rebound demand may include longer hours, off-setting work shifts, and expanded responsibilities.

ACGME education requirements remain in force and pose challenges for Program Directors. Graduating senior radiology residents must meet ACGME program requirement mandates for mammography and nuclear medicine exams [4]. First year radiology residents must be prepped (and vetted) to assume independent call responsibilities, of particular concern to residents who feel underprepared by reduced February–June 2020 case logs. The entire resident cohort's work assignments must be continually revised to meet social distancing mandates, possible COVID-19 spikes, and frequently changing institutional policies and procedures. Drivers for these policy and procedural changes are both clinical, such as expansion of cross-sectional patient appointment slots, as well as regulatory, such as decreased ability to send residents to off-campus rotations which may be the result of assignment site restrictions.

In Stage 4, ACGME common program requirements for well-being are paramount, going beyond ensuring adequate resident personal protective equipment to assuring mental health services are readily available to all residents and faculty. In a recent survey, Program Directors perceived significant negative impact of the pandemic on resident morale, and reported actual negative impact on their own morale [3]. Further negative impacts noted by the authors include additional challenges from limited or deferred vacation requests that ensued because of redeployment in Stage 3, as well as the need to offer compensatory increased case volumes to assure residents meet ACGME graduation requirements. Program Directors should closely monitor the morale of the residents through transparent frequent communications (virtual huddles) and utilize a variety of virtual residency activities such as workout challenges, game nights, and expanded mentorship programs as wellness initiatives [2,3]. Care must be taken to ensure that changes in staffing to meet changing clinical demands take in account preexisting pandemic-related diminished morale.

3. Stage 5 business as usual, redefined

Although we do not yet know with certainty its post-pandemic specifics, we do know the radiology residency program landscape will be forever altered. What this new landscape looks like will be influenced by research and leadership in the radiology community. The adage from MF Weiner's 1976 article "Don't Waste a Crisis – Your Patient's or Your Own" is apt [5]. We must fully embrace this opportunity to change and improve the educational landscape for our resident learners.

The close of each academic year typically ushers celebration of accomplishment and a sense of optimism among freshly minted graduating residents. Unfortunately, due to COVID-19, many graduating residents were neither able to partake in typical graduation ceremonies nor retain optimism in the face of an uncertain job market [6]. These job market fluctuations remind program directors of the importance of expanding curriculum content to include employment contracts, negotiations, personal finance, wellness and resilience, to better prepare residents for inevitable future volatility.

In addition to employment uncertainty, current radiology residents have experienced uncertainty of timing and location of the American Board of Radiology (ABR) Core certification examinations. This stress is added to the burden of redeployment for some residents who have been asked to provide additional clinical coverage during what would typically have included focused study time. Along with other Program Directors, the authors applaud the tremendous effort and courage our residents displayed during this crisis. While the ABR has prioritized resident safety by committing to remote Core and Certifying exams in 2021, and has articulated more clarity about the timing of the

examinations [7], residents and program directors may still have lingering concerns that nothing is certain should a worst case scenario of heightening pandemic emerge in the Winter. Open dialog between the ABR, Program Directors, and residents will remain essential in creating an enduring landscape of safe and effective examination administration and resident assessment.

Sweeping changes to the 2020–2021 residency interview season extending into early 2021 are planned. The Association of Program Directors in Radiology (APDR) and Association of Program Directors in Interventional Radiology (APDIR) endorsed the cross-organizational Coalition for Physician Accountability Work Group (WG) recommendation that all programs commit to online interviews and virtual visits for all applicants in the 2020–2021 year [8]. Release of Electronic Residency Application Service (ERAS) application materials and Medical Student Performance Evaluation (MSPE) letters has been delayed to October 21, 2020. These represent seismic shifts in 2020 for radiology residencies. Radiology leadership organizations can help optimize the virtual interview experience for all stakeholders by rapidly outlining best practices for programs and applicants. Long-term, this might include a substantial calendar shift in the residency application and interview timeline, particularly when coupled with impending changes to USMLE Step 1 score reporting (whereby programs may require Step 2 score availability to assess candidates). Furthermore, it is conceivable that post-pandemic interview experiences bolster support for proposals to modify the Match process in ways designed to reduce the number of applications put forth by each candidate [9].

Recent history has shown that medical student interest in pursuing a radiology residency is elastic and directly correlates with the strength and weakness of the current radiology job market [10]. The uncertain job market coupled with headwinds of canceled or limited medical student rotations in radiology have the potential to dramatically reduce medical student interest in radiology. Further, the most recent APDR/APDIR position statement supports limiting medical student away rotations in radiology with only limited exceptions. Additionally, many current onsite medical student outreach programs designed to inform and promote the field of radiology to medical students have been canceled as a result of social distancing. Many medical students use research opportunities to cement their interest in radiology and discover mentorship through this partnership. With significant limitations currently placed on non-COVID research and decreased opportunities to present research with the cancelation of many national meetings, the nurturing of medical student interest in radiology through research could suffer.

Despite these many obstacles, there remains tremendous opportunity to engage this generation of medical students who are digital natives, prefer immediate and collaborative contact, and are near-wedded to social media. Stage 5 Business as usual, redefined will require radiology residencies develop robust virtual experiences in clinical instruction, mentorship, and research opportunities that engage medical students. This crisis is a potential catalyst for developing longitudinal experiences coupling medical students with the radiology field. Admittedly, the in-person reading room experience facilitates camaraderie, problem-solving, and intellectual discussions among radiology instructors and students, and we will benefit when students can return; nevertheless, our challenge will be to use digital tools to expand the reach of radiology experiences to a larger virtual audience.

4. Charting the uncharted

Charting residency program management during and after the pandemic is challenging but offers tremendous opportunity, for this pandemic and for future disaster planning. Residencies face uncharted territories when descending from the pandemic peak to reach new, as yet undefined, normals. Now more than ever, radiology educational leaders must rise to the challenge inherent in each stage of the crisis, understand and meet those challenges as we descend the curve and go

beyond.

Declaration of competing interest

The authors declare no conflict of interest.

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