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COVID-19 Management

COVID-19 - Present and Future Effect on Radiologist Training?

The effects of COVID-19 have been manifold but one of the areas which has seen destabilising implications is the training of radiologists.

The immediate effects of the coronavirus pandemic have been precipitous and manifold. The longer term consequences promise to be persistent and profound. Its range of disruption is obvious with respect to patient care and the economy in all its manifestations. One of those areas for which destabilising implications have emerged and are likely to be uncomfortably accommodated is the training of radiologists in the United States - its clinical determinants and the means of didactic instruction.

Both the American and various European countries' curricula and regulations differ, the product gained - competent and respected specialists - are similar in quality and technical currency. But to better understand the threats the pandemic has already realised on this side of the Atlantic, it is important to consider the history of residency and fellowship training here, its assumptions and evolving skein of regulations which are standardised throughout the country.

In the 1960s, the residency term was three years after a one year clinical internship - two years of diagnostic imaging and one year of radiation therapy with two months of nuclear medicine squeezed in. In the 1970s, the two branches split and imaging became a three-year obligation, just in time to accommodate the introduction into the diagnostic armamentarium of CT, MR, ultrasonography and more versatile interventional techniques. By the late 1990s, fellowships - one to two years of sub-specialty training - became not just commonplace but nearly universal. Moreover, the residency term was designated to extend for four years with a certifying written and oral examination administered in the last year. The notion, then current, was that fully-trained radiologists should be multi-competent in all aspects of the specialty even if they had gained further capability later in the area of their fellowship. But the fourth year became in large measure a clinically unproductive period because of "board anxiety." Then, ten years ago, the oral exam was shifted to the third year. In the early part of the past decade, radiology residencies became increasingly shunned by American medical students and its future vitality became questionable.

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However, five years ago, in recognition of the burgeoning importance of interventional radiology, a new pathway was introduced with a detailed prescribed assignment of months and case requirements. That innovation has been extremely successful.

In nearly all hospitals in the northeastern United States and, to a slightly lesser extent, in the urban areas of Detroit, Chicago, New Orleans, Seattle, and Atlanta, the onslaught of the virus transformed health delivery. Even spare hospital rooms became ICUs, serving only such afflicted patients. Temporary hospitals were set up to serve them and to function as sites for displaced

non-COVID patients. Elective surgery was cancelled and has still not been re-introduced to any extent. Outpatient imaging in sites adjacent to acute hospitals were closed. Mammography facilities likewise were shut down and remain so now in early-June. In these COVID rich facilities, interventional procedures had by and large been limited to line placement. At this time, the incidence curve is bending downward slowly in these metropolitan areas, but rising in other places which previously had only been relatively mildly affected.

By my reckoning of the 170 or so radiology residency programmes nationally, 30% are in the profoundly challenged areas within the scope of high COVID intensity. These include many University-associated, prestigious programmes which tend to have a larger training complement than general hospitals that provide specialty training. Hence, nearly 40% of all residents and a similar percentage of similarly trained fellowship positions are within this "envelope."

What have been the components of imaging education in this new environment? Well, many radiology residents have been assigned to other duties, not radiology-oriented, such as ICU care of COVID patients. A skeletal crew of attending physicians ie instructors, remain in the hospital. All others review from home or have been put on furlough to save money for the hospitals which typically receive much of their income from elective surgery, now in abeyance. There are generally few, if any, regularly scheduled teaching conferences and most of them are by Zoom or other remote interactions. Research has by-and-large been put on hold. In short, for the past three months, education by traditional means has been suspended. Radiologists are mostly not on-site, and trainees for the most part have been reassigned.

It is likely that the first phase of the pandemic will gradually abate and pre-existing didactic means and modes will be restored but undoubtedly not as they were before. The fact that teleradiology has now fully become the means of "film-reading" legitimises for hospital administrators the notion that traditional common teaching areas have lost their necessity and can be appropriately re-assigned. That has already happened at the institution whose radiology department I led for 25 years, until four years ago. Now, the larger imaging interpretation area has been taken away for several reasons including the difficulty of maintaining social distancing. And person-to-person learning with student and teacher sitting together also violates the social distancing paradigm. With three months of nearly no cases it is doubtful that interventional radiology residents and fellows will meet their requisite case load. Can they then present themselves for employment if they have not met specified case rosters? What will be the accepted minimum of breast radiology cases if there is a closed facility for a further unknown period? Will there be grand rounds, interdepartmental conferences on a regular basis, guest speakers etc? Will the prospect of unexpected or repeat clinical reassignment away from radiology deter prospective applicants?

Moreover, will the vitality of radiology not just as a teaching focus, but also as a distinct specialty be preserved? For example, more and more, orthopaedists are reading their own studies performed with their own equipment without the intercession of a radiologist. Additionally, the spectre of AI looms ever larger independent of the pandemic as a challenge to the maintenance of radiology as it, I should say, used to be.

In sum, at least in the United States, despite the increasing volume and the further capabilities and relevance of our devices and the established skill of its practitioners, our specialty is being thrown for a loop. The medical public, in general, will soon realise it and I believe potential applicants are perceiving its risks as a career choice to be as relevant as its rewards. ■

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Key Points

- The immediate effects of the coronavirus pandemic have been precipitous and manifold.
- The American and various European countries' curricula and regulations differ, but competent and respected specialists are similar in quality and technical currency.
- The onslaught of the virus transformed health delivery.
- Many radiology residents have been assigned to other duties, not radiology-oriented, such as ICU care of COVID patients.
- Despite the increasing volume and the further capabilities and relevance of our devices and the established skill of its practitioners, our specialty is being thrown for a loop.