Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Most Adaptable to Change

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A novel corona virus was found in patients presenting with fever, cough, fatigue, and myalgia in Wuhan, China in December 2019. This virus named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is zoonotic, initially hosted in bats and transmitted to humans via pangolins or other animals (1). The disease caused by SARS-CoV-2 is called Coronavirus Disease 2019 (COVID-19). The reverse-transcription-polymerase-chain-reaction assay is used to confirm the diagnosis, but has a high rate of false negative tests (2). Repeated testing may be required before the diagnosis is confirmed. The imaging features on chest radiography and computed tomography (CT) have been well described (3,4). Evidence of pulmonary disease consisting of ground glass opacities located peripherally in both lung bases seen on chest CT examinations has been useful to support the diagnosis in patients with a negative reverse-transcription-polymerase-chain-reaction assay. However, a chest CT is not recommended as a diagnostic test for COVID-19 (2).

COVID-19 has become a world-wide pandemic that is disrupting virtually every aspect of our lives. The number of people with COVID-19 has already passed 3 million and continues to rise. The mortality rate is not yet known, but will depend upon co-morbidities and the preparedness of the healthcare facilities. In an effort to slow the spread of the virus, many governments have instituted "shelter in place" rules that ask us to stay home except for necessities such as food and medical care. "Social distancing," which includes replacing face to face meetings with virtual meetings and maintaining a distance of at least 6 feet when contact is needed, is mandated. These and other measures are slowing the increase in new cases and giving healthcare facilities more time to gather the materials needed to care for these patients.

Many medical centers have created teams of physicians who alternate covering their services. If illness depletes the ranks of one team, a second is available. This assures that not all physicians will be out because of illness at the same time. Healthcare facilities have curtailed routine medical care in order to focus on COVID-19 patients. Radiology departments have stopped screening studies such as screening mammography to concentrate on the care of more acutely ill patients. Healthcare workers are being asked to work from home wherever possible. Since medical imaging is now digital, transmission of images from the imaging equipment to a picture archiving and communication system is routine, and those images can then be directed to any location within the healthcare system. As a result, many radiologists are able to work from home, using workstations connected to the picture archiving and communication system and supported by the medical center or department's information technology team.

In addition to accomplishing "social distancing," working from home has many advantages. First, it eliminates the commute to work. This saves time and expense and has secondary benefits to society, such as fewer cars on the roads, less air pollution, and decreased use of fossil fuels. This will also benefit the healthcare centers as fewer parking spaces are needed. Second, less space is needed in the hospital for reading rooms, faculty offices, or even break or lunch rooms, and that space can be deployed for other purposes. Since hospital space is among the most expensive building space in our society, this becomes a significant savings.

As the field of medicine continues to expand and become more complex, it is increasingly clear that we need to bring together the expertise of physicians from multiple disciplines. This is commonly done in our multidisciplinary conferences where internists, surgeons, radiologists, pathologists, and others review clinical information, confirm diagnoses, and plan treatments. While this has traditionally been done in a conference room, due to social distancing, it is now being done remotely. This virtual conferencing has been extended to department grand rounds and resident and fellow teaching conferences. Instead of meeting in a conference room at noon or at the beginning or end of the workday, learners log onto the website where they can actively participate by asking or answering questions.

It should not be surprising that these virtual conferences are successful. As our academic medical centers have expanded, often incorporating community hospitals, one of the things most valued by those physicians working remotely is access to tumor boards and other multidisciplinary conferences. This is one of the most commonly offered benefits to the peripheral facilities within an academic healthcare network.

Education is an important mission of academic medical centers, and the impact on radiology training programs is multifaceted (5,6). Social distancing is making it more difficult for us to educate the next generation of radiologists. Online conferencing is one solution, but most find it less satisfying than being physically present with the teacher or the learner. However, this limited interpersonal interaction lends itself well to other teaching techniques, such as the "flipped

Acad Radiol 2020; 27:907–908

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https://doi.org/10.1016/j.acra.2020.04.037

classroom" (7). Radiology residents can read assigned material the night before a teaching conference and use the virtual conference to ask questions, receive clarification, and discuss practical applications. The reliance on in-person teaching conferences is diminished. Multi-institutional case conferences and the use of social media may help make faculty more effective and efficient (8). Residents can also engage in research or practice quality improvement projects or learn about leadership, crisis management, or disaster preparedness (6). Experience with web-based conferencing has been positive and the tools available free teaching from geographic constraints (9).

Although we are making progress in slowing the spread of the disease, we are seeing the economic impact on healthcare facilities and radiology practices (10). Fewer hospitalizations, outpatient visits, and imaging examinations and image-guided procedures mean less revenue. Although federal and state governments may provide some assistance, subsidies from those entities will not be sufficient to make up for the lost revenue from significantly lower numbers of studies.

These are stressful times, with normal activities curtailed and concerns about the impact of COVID-19 to our health and the economic impact yet to be fully realized. Radiologists, many of whom are already suffering from "burnout" can make use of this COVID-19 downtime by taking care of ourselves, engaging in personal development, supporting others, or participating in continuing medical education or maintenance of certification credits (11).

At some point, the COVID-19 pandemic will have run its course, and we will return to "business as usual," but should we? Why not have radiologists, pathologists, and others work from home? Must a radiologist come into the hospital or outpatient imaging center to use the same workstation he or she has at home? Certainly we need some radiologists to be present where patients are undergoing image-guided procedures. It is also important to have a radiologist physically present to answer questions and respond to urgent patient care issues such as an adverse contrast reaction. However, exams can be protocoled, images interpreted, and results communicated to referring physicians electronically. We do it now! The difference is only that the radiologist is home rather than in the reading room of the hospital or imaging center.

We should also take advantage of the lessons learned about remote conferencing. Such conference practices give us more flexibility in terms of when the conference is held, and increases the availability of physicians and learners to participate.

This may also be a time to rebalance our professional lives with our personal lives. Increasing volumes of ever more complex studies are taxing radiologists to complete the day's work in a timely manner. The importance of imaging studies means referring physicians are anxious for the results in order to care for their patients. Nowhere is this more evident than in the emergency rooms, where overcrowded waiting rooms delay much needed urgent care. Medical imaging has an important role in helping to reach an accurate diagnosis and initiating medical care, and the pressure to provide immediate interpretations is increasing. Professional burnout is affecting all medical specialties, but radiology is one of the most vulnerable. Do we really want to return to "business as usual," or is this an opportunity to reassess how and where we work?

In his 1859 voyage on the HMS Beagle, Charles Darwin gained a number of insights. One of the most commonly cited is his recognition of the need to change. "It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one most adaptable to change."

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