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Practice, Policy &amp; Education

## Preparing for the next pandemic: It is more than just about numbers

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### ABSTRACT

The COVID-19 pandemic has brought enormous hardships to our country and healthcare system. We present our experience navigating through this pandemic with emphasis on reactivating our practice while keeping patients and staff safe. It is hoped that the methods and thought processes provided in this manuscript will help those who are in various stages of managing their practice or provide lessons learned as our country eventually moves beyond this pandemic. Lastly, we aspire to provide a guide for those who are in a position to prepare for the next pandemic.

### 1. Introduction

“Our greatest challenge is a personal one. It is the challenge of commitment. Commitment to the welfare of the patient and commitment to the identity and dignity of man...”

~ Sister Generose Gervais

The COVID-19 pandemic presented challenges to our large, multi-specialty medical practice not seen since the Great Depression. A common mitigation strategy early in the pandemic was to severely curtail nonemergent medical visits and procedures, which in turn placed financial stress upon medical institutions already grappling with staffing and supply concerns. Closing of nonessential business has acutely impacted healthcare including radiology, which is a downstream provider.<sup>1–4</sup> This has forced many radiology practices to employ various austerity measures or other drastic methods to remain financially solvent.<sup>3</sup>

Previously published articles detailing the pandemic's effect on radiology practices have addressed volume reduction, practice reorganization and recovery, and nearly uniformly suggested strategies for remaining financially solvent.<sup>1,3,5,6</sup> Yet, few actually discuss the impact on our patients and meeting all of their healthcare needs, our referring providers and their access needs, and, of critical importance, our employees and their physical, emotional, and spiritual supports during these unprecedented times. Meeting the needs of these key stakeholders while being deserving of their trust and goodwill are integral to a radiology practice's survival and reactivation. This article aims to add to

the existing literature by highlighting one practice's strategy, successes, and lessons learned during the current pandemic, and, ultimately, a successful reactivation.

### 2. Volumes and recovery

“I'm often quoted as saying, ‘No money, no mission.’ That's true, but remember the rest of it: ‘No mission, no need for money.’”

Sister Generose Gervais

No article about radiology business interruption and recovery would be complete without a review of imaging volumes and business finances. First, one must step back prior to the pandemic and understand practice dynamics. For a business to function properly, leadership and managerial staff must have a clear vision and strategy. Equally important is the need for leadership to have contingency plans for addressing a crisis. Therefore, leadership needs to have a firm grasp on both inputs into the business, e.g. imaging requests, and outputs from the business, e.g. imaging services, reports, patient bills, and practice bills to be paid. Without this understanding, leadership cannot fully evaluate risk scenarios, assess the impact of diminished volumes, or develop emergency plans for addressing various stages of a crisis.

The first step in this evaluation is to have knowledge of what drives core business. In other words, it is important to understand what percentage of revenues is derived from outpatient versus emergency department or hospital inpatient imaging. Driving down deeper, practices should understand where their patients come from (e.g.

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geographically, through affiliated providers, as new versus established patients, etc.).

In the case of our radiology department, we are a combination outpatient and inpatient imaging practice embedded within a large, academic, multispecialty system. Our inpatient imaging performed within practice-owned hospitals contributes about 25% of our overall practice volume. A substantial portion of our practice is serving patients who live outside the immediate region and who travel to us by car or plane. Eighty-five percent of our imaging is of established patients, with 15% resulting from new patients. We have a capacity for electronic virtual visits in our multispecialty practice, but this is a small percentage of all visits. These types of practice mix data, including total imaging volumes, divisible by both modality and performing division, as well as total and projected outpatient volumes, were readily available to us prior to the COVID-19 pandemic. Additionally, business expenses were readily known beforehand. From this input, we were able to project what impact diminished volumes would have on the entire institution, in general, and in radiology, specifically.

### 2.1. The storm on the horizon

Much like the entire country, we watched closely as COVID-19 spread in Southeast Asia, through Europe, and eventually to the United States. Various scenarios played out around us as we prepared for the eventual arrival of the pandemic at our doors. As an institution, preparations started in late January. Institutional and department level leadership were able to identify significant savings through holds on construction projects, holds on procurement of new equipment, renegotiation of equipment and IT support services, and reductions in nonessential contract workers. Although our institution overall employees a small percentage of contract workers relative to our workforce, decisions to release contract workers was not easy as such a decision affects real people who are valuable members of our team. A process was developed to allow appeal for particular contractors who were felt to be critical to the success of the institution during the pandemic. Many contractors were assured that they would be welcomed to return at the first moment it was feasible. The goal was to be very transparent, allow released contractors to ask questions, and allow for contractors to search for other opportunities well in advance of when their services would be terminated. Nevertheless, later in April, difficult decisions about furloughs, salaries, and benefits were necessary, in addition to preparations to potentially draw on institutional reserve funds. Business continuity plans were updated for each radiology division.

### 2.2. The storm is upon us (Table 1)

As a result of restrictions placed on elective medical visits and procedures, first by our institution and then by the state, during the month of April our outpatient imaging volumes plummeted to 10–20% of normal, which as noted above is the main driver of our practice's overall imaging volumes. Given radiology departments' generally significant contributions to the overall financial health of medical institutions, unsurprisingly this created substantial financial strain for our institution. The path to recovery for our department and institution were interconnected, and hinged on appropriate planning to restart the outpatient practice in a safe and expeditious manner.

## 3. Patient safety and trust

During the initial phases of the pandemic in the United States (late March through April 2020), institutionally, we chose to evaluate each outpatient's unique medical situation and care needs to determine which patients needed to be seen on our campus, which needed to be seen but could be served virtually, and which patients could safely defer their care for various time periods, i.e. 2, 4, 6 weeks, or more. The guiding

**Table 1**  
Key strategies for staff and patient support during the pandemic.

Patient:
1. Ensure patient safety
A. Pre-appointment screening prior to arrival on campus for COVID-19
B. Providing PPE and handwashing at all points of entry as well as in all waiting areas
C. Strict adherence to social distancing in all areas
D. Establishing secure portals of entry with screening and additional help where needed
E. Stress our core mission in that the patients needs are paramount
F. Additional imaging offerings outside of our normal operations
Staff:
1. Safety
A. Constant and transparent communication on the latest science
B. Ensuring PPE is monitored-in-real time
a. All necessary PPE as well as education on usage was provided and continually updated
b. A novel PPE tracking tool was implemented to ensure adequate PPE
C. Unique workflows
a. Ensured, as much as possible, that no COVID-19 patients would be imaged at our outpatient campus
b. Specific workflows developed to identify and provide care for any patient with COVID-19
D. Radiology teams inclusive of all practice areas developed to address pandemic-related needs
E. Quick and nimble deployment of essential staff who could work off-campus
2. Staff well-being
A. Transparent communication about the pandemic and how it is affecting our department
B. Clear messaging that we will take care of our employees and their needs
C. Relaxation of the absence/leave policy
D. Concentration on relieving financial stress on our employees and making them whole quickly
E. Redeployment of staff to other areas which provided a psychological benefit of helping others where needed
E. Enhanced mental health service offerings where needed
F. Enhanced and novel childcare opportunities

principle in all of this was to keep patients as safe as possible from contracting COVID-19 while not adversely affecting their other health needs. Unfortunately, this approach was akin to treading water, as patients who could be deferred still needed to be seen at some point and revenue shortfalls from these deferred cases were not being made up. In fact, our initial projections were that vulnerable outpatients would likely need to be seen and treated on our outpatient campus during the “true” projected surge in COVID-19 cases in the months to follow. These patients include those who needed semi-urgent surgery and patients with new diagnoses, especially cancer. These patients could wait a little, but not a lot. Thus, we were charged in developing a plan to safely bring patients back on campus to meet their imaging needs.

Outside of radiology, the hospital practice prepared for a possible surge in COVID-19 patients by reducing the hospital patient census as much as possible, while addressing emergency department patient access needs and urgent surgical care needs. Steps were taken to reduce or eliminate the physical presence of nonessential staff on campus. In our outpatient practice, the institution limited access points into our outpatient building, redeployed staff from clinical and nonclinical areas to work as door screeners, added an advanced nurse screening desk at the doors to the outpatient building should a patient fail the initial door screen, and added a dedicated COVID-19 screening clinic if a patient failed the nurse secondary screen. In all of this, the goal was to prevent any outpatient with known or suspected COVID-19 from entering the outpatient practice without being properly isolated. By employing these steps, there was an unintended, but very real, psychological benefit to both our patients and our staff. This message was “we intend to keep everyone safe at all costs.” In the outpatient practice, patients and staff could expect a “COVID-free” place to work and receive treatment to the extent this goal was humanly possible. As for patients with COVID, they could expect to be treated with the same level of care they have always received although the place of care would shift during the crisis.

Messaging through the enterprise and on our websites put these goals directly for all to view.

Within radiology, we have the fortune of having both inpatient and outpatient facilities distinctly separate from each other. We worked as a team to develop workflows for outpatients so that no patient would be denied imaging services, regardless of COVID-19 status. However, these workflows necessitated some creative movement by staff and patients, whereby patients who were known or suspected to have COVID-19 were manually rescheduled and imaged in our inpatient setting. Patient wayfinding and safe movement through the hospital required very specific communications between our infectious disease colleagues, radiology schedulers, imaging technologists, nursing staff, front desk personnel, door screeners, and radiologists. Our leadership team met weekly to review and refine these workflows, which have changed throughout the COVID-19 crisis as more information on the disease became available, and have also changed in preparation for the influenza season and vaccinations during the fall.

As above, we knew that demand would build from our outpatient population over the months of April and May. We married our practice-based analytic data to the outpatient clinical appointments data. Historically speaking, we knew our rate of outpatient imaging per outpatient appointment before the start of the pandemic. Thus, as we watched clinic appointment scheduling increase, we were able to predict what our outpatient imaging needs would be on a weekly basis. Nevertheless, it became apparent that we would need to address this demand creatively and cautiously. Semi-urgent, outpatient surgical procedures, and oncologic patients were prioritized. As this was early in the pandemic with little in the medical literature, a decision was made to require both a COVID-19 PCR screening as well as a screening chest CT for all outpatient surgical patients, with both tests performed in a manner that the results would be available prior to the date of the surgery. Our radiology department was asked to accommodate patients scheduled for a Monday surgical procedure by having a chest CT on the Sunday prior.

The introduction of Sunday scanning into our outpatient radiology practice posed significant challenges such as: patient access to a locked facility, COVID-19 patient screening, and determining what studies and modalities to make available.

Despite the challenges noted, the Sunday practice expansion was overwhelmingly positively received by patients and referring providers. After the month of May, pre-surgical chest CT screening was discontinued based on internal data as we learned more about the virus and screening programs and a developing understanding of COVID-19 in the medical literature. However, we also expanded our offerings across the patient spectrum, no longer limiting it to surgical and oncology patients. We quickly filled our capacity and expanded our outpatient MRI imaging to 4 MRI scanners. We tracked access and completed imaging appointment data and reviewed it monthly with senior leadership in order to ensure that we were adequately addressing patient needs and imaging demand. We additionally had our scheduling manager call individual patients to solicit feedback from their experience. Greater than 90% found Sunday imaging to be a positive experience with numerous thankful comments about this new service.

#### 4. Employee trust and stewardship

If you ask business leaders what their company's most important asset is, most will say the people that make up their workforce.<sup>5</sup> Yet, during economic and/or business downturns, many leaders chose to cut or eliminate portions of their “human capital.” This is understandable from a cost cutting perspective, since payroll is most often the highest expense line item of any corporation. However, what happens when business prospects improve? Will furloughed workers be available to come back to work when you need them? What impact will shifting of the financial burden to employees have on the company, university, or medical practice in the long run?

In light of these concerns, we believed that protecting our staff to the

greatest extent possible was high priority. When our practice essentially halted, our leadership looked to keep our culture and people as intact as possible.

Recognizing the dire financial consequences that were forecasted secondary to the pandemic, several steps were taken to address this directly. Physicians and administrative leaders across the practice accepted salary reductions ranging from 10 to 20%. Prior to the CARES Act taking effect, our institution implemented its own paycheck protection program. After May first, some allied health staff were furloughed, beginning with volunteers. Once voluntary furloughs were established, rolling furloughs were implemented with the expectation that we would bring back employees swiftly in a titrated manner based upon forecasting tools and as soon as our practice picked back up. With the above practice changes and practice-reactivation strategies, we were able to bring back most employees by the end of May/early June. As part of the payroll protection program, most employees remained financially whole throughout the furlough period. Furthermore, once our practice returned to normal and our deficits from the pandemic were covered, all employees received as a separate paycheck any pay missed during their furlough period or during time of salary reduction.

For those who were salaried, we created unique project teams to pursue prioritized, targeted, and time sensitive quality and practice improvements during our lull. The specific aim was to give dedicated time to individuals and teams that could not have otherwise been allocated. Many excellent quality and practice-based projects were undertaken and successfully completed, including, but not limited to, MRI protocol standardization, scheduling redesigns, and pediatric oncologic imaging standardization.

An interesting by-product of the pandemic was the creation of several unique roles that allowed many individuals to continue to work by taking on roles outside of their typical areas of responsibility, while providing a necessary value to the organization during these unprecedented times. One example would be door-screeners, whose role was to ask patients at the door a series of questions to determine known or potential COVID-19 infection. It would not be uncommon to have the doors screener's name badge stating they were a human resources employee, someone from media services, or the medical school librarian serving in this role. Interestingly (and not necessarily unexpectedly), the employees who were transitioned to this role took great pride in serving the institution, even if it was only temporary and not necessarily what their job title would suggest.

In addition to protection of pay, we concentrated heavily on protecting our staff from exposure to coronavirus while on campus. Oversight and management of personal protective equipment (PPE) was a critical activity and included supply change engagement, distribution, inventory analytics and daily monitoring of needs across the 23 service areas of our campus for both the 2 hospitals and our outpatient practice. A new dashboard was constructed to monitor PPE. A PPE Champion was created to ensure that designated individuals embedded throughout the practice were checking for availability of appropriate PPE, updating signage, providing donning and doffing training and answering questions, and otherwise serving as a resource and communication network for employee safety related to COVID-19. Within our electronic medical record in partnership with our Epic and Radiant colleagues, unique and readily identifiable icons were created to identify patients with known COVID-19 or who had a pending COVID-19 PCR test which had yet to be resulted. From these icons, we were able to create a COVID-19 dashboard for radiology scheduling purposes, allowing us to proactively schedule such outpatients in our inpatient practice as described above.

During the initial phase of the pandemic from March through June we developed a two option staff scheduling system, utilizing “Pods” and “Platoons.” In the “platoon” model, staff members rotated in and out of particular areas with a period of “quarantine” time. Thus, if one member develops or is suspected of having COVID, then a “quarantined” member could fill their place. This allowed for a population of “healthy” reserves. In “pod” type scheduling, individuals worked as a unit with no cross-

over between other units. Thus, the whole unit was essentially “self-isolated.” This prevents cross-contamination between various pod units. For our physician staff, we utilized the platoon-type approach. For technologists, pods were formed.

In our workspaces, we performed a department-wide assessment, including our radiology reading room, administrative staff office spaces, and technologists work areas. We set a firm requirement of six feet between individuals. Thus, if six feet could not be achieved between any particular area, we would relocate individuals and move equipment to maintain a standard level of social distancing. For example, in our pediatric reading room, we typically have two staff and two residents. In order to maintain a six-foot distance, we moved the residents into “novel spaces,” a spare reading area with appropriate social distancing and a CT lead technologist office. One of the staff was able to read remotely, i.e. not within the reading room. Therefore, what had been a room of four persons pre-epidemic, now had only one person. We temporarily moved PACS stations to the home offices for vulnerable staff as well as offices “in house” to decompress additional reading areas.

In addition to employee personal finance and on-campus or practice-based issues, several additional considerations needed to be addressed. We would submit that these were every bit as important in maintaining the health and wellness of the institution, our department, and our employees. Two of these issues deserve detailed elucidation here: 1) employee mental health and 2) childcare needs.

For many years prior to the pandemic, our enterprise has had an employee health and wellness program as well as an employee assistance program. We consider employee wellness and mental health as integral to our core values. However, the pandemic presented a unique challenge to mental health. Depression, anxiety, and employee burnout in the medical profession became mainstream features in media and literature across the United States.<sup>6</sup> In order to address these issues, we took several pandemic-specific steps. First, a COVID-19 pandemic helpline was established with coverage 24 h-a-day, 7 days-a-week to answer employee questions about COVID-19 as well as to listen and counsel employees that may be experiencing mental health needs secondary to the pandemic. This is in addition to our pre-pandemic programs for helping employees with mental health needs. Secondly, our institution took the additional step to alter our co-payment models to reduce out-of-pocket costs for out-of-network mental health providers. This allowed for an increase in mental healthcare access at a cheaper cost to our employees. Lastly, and frankly simply, we took the step to simply talk about mental health needs in an open and inclusive way. By doing this, a psychological safety space was given for our employees to learn that what they are going through is not only with them. Others are having the same struggles. We wanted our employees not to have a since

of isolation even as they shifted to a home-work models.

Secondly, childcare can be a stressor for many families. With pandemic-related school and daycare closures, many of our staff found, rather suddenly, that they were in need of additional childcare. In order to address this issue, our institution launched a COVID-19 employee childcare help subpage in order to assist our staff in securing help in taking care of their children while at work. We were able to draw on existing services available to our employees including an institution-owned childcare service. Finally, supervisors were encouraged to reallocate resources. In other words, rather than furloughing an employee during a downturn because of lack of need, they could serve, if desired, as a childcare giver for children of other employees who are needed for direct patient care.

## 5. Conclusion

We are currently living through a once a lifetime economic crisis and healthcare crisis, both brought on by the pandemic. The authors' experience is not unique and likely similar problems have been addressed in other radiology departments and medical organizations. It is our goal to simply describe our thought process and what we did to mitigate risk for both our patients and staff while meeting the medical needs of all of our patients in a timely manner. Our hope is that, by participating in sharing experiences and approaches, institutions can learn from one another, for mutual benefit now and in the future. Empathy, communication, and flexibility, in addition to data analytics and prioritization of staff needs, were key attributes of our success.

## Funding information

None.

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