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Touch Me Not: Safe Distancing in Radiology During Coronavirus Disease 2019 (COVID-19)

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INTRODUCTION

In the era of COVID-19, “social distancing” has become a buzzword. Strictly speaking, social distancing refers to physically distancing by 1 to 2 m, but the overall concept is more important: disrupting the infectious chain by separating those with the disease from those without [1]. Epidemiologists have espoused the term, believing in its ability to “flatten the curve.” By reducing the exponential rise in cases, the health care system is not overwhelmed and can function sustainably over the long term [1]. Although this concept’s main intention is to control disease, in the hospital setting, it provides the equally important added benefit of ensuring continuity of vital services should intrahospital transmission occur [2]. We are part of a 1,700-bed hospital, with a radiological service strength of over 600 (41 residents, 77 attending physicians [nuclear medicine, interventional, diagnostic], 273 radiographers, and 240 nurses and administrative support staff). This article describes our measures and early experiences with safe distancing in our radiology service.

STAFF

Our initial step was to divide our radiology service manpower into

smaller functional subunits. Each subunit was designed to function independently and carry on the needs of the service even if a substantial proportion of staff were unable to work. We used both physical and temporal measures to segregate the teams, with minimal crossover both during and after work hours. Our diagnostic radiology manpower explored the use of home tele-radiology, but because of infrastructure limitations, we were unable to do this on a large scale. Instead, we split into three mixed subspecialty functional subunits, comprising a combination of trainees and attending physicians specializing in body, musculoskeletal, and neuroradiology; one team was physically located in the inpatient area, and two teams were located in outpatient areas. Case distribution was independent of team location. Generally, an organization derives more benefit by forming a larger number of subunits. Our emergency medicine colleagues divided into five functional subunits. We chose three because in the event that our trainee manpower was diverted to areas of greater need, the attending staff could still sustainably provide 24/7 radiology coverage.

Temporal segregation was also used in the form of a 15-min gap between shifts. For example, the day team would cease work at 5:45 PM and an on-call team would arrive at 6 PM.

Daily communications have been entirely altered. Basic interactions, such as handshakes, are now nonexistent, and all verbal communications take place with staff in surgical masks and at least 1 m apart. We have asked our clinical colleagues to consult us using telephone and HIPAA-compliant messaging platforms (TigerConnect, Santa Monica, California) rather than direct physical consultation in the reading room. Meetings have been affected the most. Nonessential meetings have been canceled, and essential meetings, important to clinical care, use teleconferencing applications such as Zoom Video Communications (San Jose, California) and Cisco WebEx (Milpitas, California). Some of these applications can allow up to 1,000 simultaneous participants and can readily interface with smartphones, tablets, and laptops. To deal with the expected surge in cell phone usage to accommodate these virtual meetings, some staff have taken extra steps to increase their data plans. When physical meetings are performed, they are kept as

small as possible, with all attendees masked and separated by 1 to 2 m.

Mealtime is traditionally used for socializing and team building but can also be an inadvertent source of disease transmission. We needed to create a mindset shift. Staff have been strongly encouraged to pack their meals and eat at designated internal safe dining areas. Besides encouraging teams to eat only within their functional subunits, we moved tables at least 1 m apart from each other, with placards on tables reminding diners not to dwell and to keep conversation to a minimum. Lunch hours among our teams are now staggered. Because prolonged contact time with COVID-19-infected persons is likely correlated with an increased risk of infection and to facilitate staggering of mealtimes, we have encouraged diners to limit their mealtimes to 30 min. We opened up additional dining areas to minimize staff congestion. Public shuttle buses from the hospital to a local food market have been indefinitely postponed to minimize the opportunity of different teams from sitting in close proximity and mixing with one another.

PATIENTS AND VISITORS

Prior publications have elaborated on safe distancing of patients and accompanying persons in radiology departments through reconfiguring of radiology departments, screening questionnaires, triaging scan urgency in symptomatic patients, and reducing the number of accompanying persons [3,4]. One new area we are exploring to further facilitate physical distancing between patients is a “precision appointment” (PrApp) model (Table 1). This PrApp model was conceptualized as part of our Future Radiological Sciences Patient Journey project in preparation for a new hospital complex. However, some elements of this PrApp model

are being fast-tracked to enable further physical distancing of patients. Inspired by the Toyota company “Just-in-Time” production method of arranging small deliveries of exactly the correct amount of material required for manufacturing, the PrApp model allows patients to have highly customized and accurate appointment times so that they are able to walk in, get scanned, and leave the department with zero to minimal dwell time in the department. The PrApp model is especially useful for complex studies that require additional prescan preparation.

DOWNSTREAM EFFECTS OF SEGREGATION AND MAINTAINING SOCIAL CONNECTEDNESS

The downstream effects of safe distancing should be highlighted for early mitigation and rectification. Training residents virtually has been challenging without side-by-side checking. Attending staff should make concerted efforts to be inclusive and give trainees feedback by via telephone or messaging. Patients are also affected; interdisciplinary conferences have been truncated or canceled, and patient radiology examinations have been postponed, with potential negative ramifications. Of particular concern are patients presenting with advanced disease, as was anecdotally observed by more senior staff during the 2003 severe acute respiratory syndrome epidemic.

Staff morale and mental well-being must be carefully monitored [5]. Simple words of encouragement from hospital leadership, disseminated by e-mail or other means, cannot be underestimated to boost team morale. Manpower rotation should take into account areas of higher stress (such as the inpatient area) to give staff a

chance for mental recuperation. Our three functional subunits rotate monthly between outpatient and inpatient areas to allow teams a change in environment. Also, our staff experience office disseminated gift bags to all staff, containing bottles of hand sanitizers, energy bars, and handwritten notes of appreciation from members of the public. Should staff need more formal mental health consultation, hospital outreach hotlines are readily publicized for those in need.

Safe distancing does not equate to social distancing. A recent sharing by one of our functional cohort teams show masked team members practicing safe distancing and enjoying a birthday cake. Awards have been presented among masked participants with an elbow bump or slight bow with hands clasped. Finally, a new virtual connectedness is emerging. Previous disparate groups are now connected via new community chat groups that cross subspecialty teams barriers. The number of communications on these chat groups has multiplied, allowing participants to share information, raise questions, and empathize with others.

Although safe distancing is only one part of a holistic strategy to counter COVID-19, it is a critical measure to battle the pandemic. For such distancing strategies to be effective, we must have maximal compliance. Safe distancing measures must be in sync with institutional and national policies, such that all hospital staff and patients are receiving a clear and consistent message [6]. And these policies must be packaged as a new normative state, ingrained within all our DNA. Perhaps most importantly, radiology leadership must educate, facilitate, and, if needed, strongly reinforce these concepts. We, as radiology services, have our own unique role to play during this pandemic. Our experience over the last

Table 1. The Precision Appointment (PrApp) Model

Stage of Radiology Journey	Proposed Features
Prescan	<p>The aim is to pro-actively identify issues that may delay or complicate the scan on the day of the appointment. These can then be addressed up front <i>before</i> the patient arrives in the department. The use of electronic communications saves the patient unnecessary trips to the hospital to sort out these matters.</p> <p>The proposed features include:</p> <ul style="list-style-type: none">■ Initial electronic notification of scan date and time■ Educational videos on scan procedure■ Self-administered online prescan safety screening (eg, MRI safety checklist)■ Tele-consult with radiographer (if needed) to clarify issues highlighted by prescan safety screening■ Reminder of appointment closer to date of scan (with detailed interactive way-finding instructions, what to do on arrival and who will be attending to you)
Day of scan	<p>The focus shifts from prescan preparation to trying to predict the actual arrival time of the patient as accurately as possible. Patients will be able to update the department about their estimated time of arrival, allowing departments to do real-time adjustments of the actual scan timing. Again, the intent will be to reduce dwell time of patients and their accompanying persons in the department.</p> <p>The proposed features include:</p> <ul style="list-style-type: none">■ Final check for any new scan contra-indications (eg, acute illness that may require postponement of the scan)■ Patient to update on estimated time of arrival (“I’m on my way” or “I’m late”)■ Automatic check-in on arrival in hospital (based on location sensors in hospital grounds)■ Customized welcome pack ready at department patient locker (eg, preselected hospital attire of correct size if the patient needs to change before the scan)■ Estimated scan end time application (to keep accompanying persons updated on when they can return to the department to fetch the patient, which reduces the need for such accompanying persons to wait at the radiology department)■ “Scan and go” concept (no need to queue for payment or other administrative matters after the scan; administrative matters will be handled back end)
Postscan	<p>The aim is to provide timely updates to the patient regarding their scan and to facilitate any postscan clarifications that may arise.</p> <p>The proposed features include:</p> <ul style="list-style-type: none">■ Results update (via online patient portal)■ Tele-consultant with radiologic technologist or radiologist (for follow-up of postscan complications or clarification of scan findings)

11 weeks may help others do their part in flattening the curve, allowing us as a community to remain safe and emerge revitalized and stronger than before.

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