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## From SARS to COVID-19: One Department's Journey



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A tertiary hospital in Singapore shares its experience of handling the work during the outbreaks of infectious diseases, namely during the severe acute respiratory syndrome (SARS) and the coronavirus disease (COVID-19) epidemics. Focusing on the operations of the radiology department, it offers recommendations that may be useful for other hospital units too.

You may also like: [COVID-19 Clinical Guidance for Cardiovascular Care](#)

In the article published ahead of print in the *American Journal of Roentgenology*, Cheng and colleagues (n.d.) explain how during the SARS outbreak in 2003 the radiology department staff at Singapore General Hospital suddenly found themselves on the frontline of clinical service. They were being constantly exposed to the pathogen, and "any breach in infection prevention and control mechanisms in the radiology department [had] far-reaching consequences." Out of 238 SARS cases (resulting in 33 deaths) confirmed in Singapore back then, 40.8% were healthcare workers with five deaths.

Among the changes the department underwent at that period were segregation of workflows for different types of patients, enhanced protocols for patients on isolation precautions for more common pathogens, adjustment of resource utilisation to meet the raising demand for portable imaging, and introduction of strict infection prevention and control measures, eg wearing masks, using personal protective equipment (PPE), applying hand sanitisers and disinfectant wipes, etc.

The authors whose institution is now responding to the novel COVID-19 pathogen, provide some insight into effective re-organisation of work. The timing of the COVID-19 outbreak coincided with a 3-day-long public holiday in Singapore that decreased patient load in hospitals. Thus the healthcare system had additional time to prepare.

It is noted that despite the many genetic similarities in COVID-19 and SARS coronaviruses, the situation now is complicated by the reported disease transmission by asymptomatic individuals and the uncertainty of incubation period.

In their article, the authors identify three key areas for a radiology department during an infectious disease outbreak, namely 'People,' 'Places and Equipment,' and 'Processes and Policies' divided into subsections, and suggest 'Useful Questions to Consider' for each subsection.

### People

- *Ensure rapid sharing of accurate and useful information.* This is achieved through meetings, e-mails, approved group instant messages and workplace social media. Informing every staff member proved to be challenging in the beginning. Another issue is quickly addressing false rumours.
- *Ensure infection prevention and control knowledge and practices are up to date.* Despite having the SARS experience of wearing masks and utilising PPE, refresher courses and videos are provided to translate theory into competence in practice.
- *Create new hybrid working teams.* Shift system proved to be effective in 2003 as a way to prevent cross infection and allow uninterrupted service in case any group had to be quarantined. Services are provided remotely whenever possible. Resident rotations are suspended, and the updated cohort plan is applied to all other staff members.
- *Manage emotions during adversity.* Together with official staff welfare groups, there are informal ground-level staff support initiatives, such as sharing previous experiences with newer staff to reduce the level of stress and giving special attention to staff with specific concerns (eg those with young children).

### Places and Equipment

- *PPE.* Depending on the availability of the PPE stock, the distribution strategies have to be adjusted to deal with increasing shortages.

- *Dedicated scanners for isolation and high-risk cases*. To cater to infection prevention and control, negative air pressure rooms are now being used for screening procedures, different groups of patients are segregated, and protocols map the usage of lifts and routes.
- *Physical security and access control*. Measures like access to departments by staff cards only and screening stations at entrances are introduced. Whenever possible meetings are substituted by virtual or telephone consultations.
- *Decentralised or alternate working areas*. There are several reporting rooms across the campus and each is now staffed by a mixed subspecialty team.
- *Portable imaging capability*. Based on the experience during the SARS epidemics, the department procured several additional portable imaging units. A large separate fever screening area with portable radiography capability is being set up at the hospital.

### Processes and Policies

- *Review of policies and procedures*. Processes in the COVID-19 outbreak were updated based on prior SARS policies (eg enhanced screening, managing isolation or high-risk cases, etc).
- *Isolation or high-risk cases*. Due to increased staff exposure to the risk of cross infection, each referral is discussed beforehand and if possible, transport of infectious patients is avoided by means of portable imaging.
- *Modified interventional radiology processes*. The priority interventional radiology cases are identified and nonurgent procedures are postponed. If a patient cannot be screened at the bedside, preplanned direct routes are used for transfer, and cleaning procedures are implemented afterwards. Teams are segregated and separated to minimise the risk of cross transmission.
- *Rapid provision of radiologic results*. Suspected or confirmed COVID-19 cases are immediately flagged in the reporting system. This helps in adjusting the workload of staff and their redeployment to areas with surge in demand.
- *Daily routine instructions*. These are issued by the hospital outbreak control task force and disseminated to staff together with information on new hospital policies (eg, freezing of leave, postponement of meetings). The toolkit also includes summaries and video messages from the senior leadership.

The authors note that the hospital measures and policies will have to be adjusted as the outbreak progresses highlighting that radiology departments must also be ready to operational changes – to ensure uninterrupted provision of services, protect patients and staff, and maintain staff morale.

### References

Cheng LTE et al. (n.d.) Déjà Vu or Jamais Vu? How the Severe Acute Respiratory Syndrome Experience Influenced a Singapore Radiology Department's Response to the Coronavirus Disease (COVID-19) Epidemic. *American Journal of Roentgenology*, 0 0:0, 1-5. Posted online on 4 Mar 2020. Available from <https://www.ajronline.org/doi/10.2214/AJR.20.22927>

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Published on : Mon, 9 Mar 2020