INTERNATIONAL DAY OF RADIOLOGY 2020: MALAYSIA
CHAPTER

RADIOLOGIST AND RADIOGRAPHERS
SUPPORTING PATIENTS DURING COVID-19

It is perhaps very apt that IDOR 2020 theme, as above, would be reasonably long and reflective of the continuous battle facing the whole world. The date, 8 November 1895, will resonate with all radiologists and radiographers as the day when Wilhelm Rontgen discovered the x-ray, literally opening another dimension in what is currently known as medical imaging. The November month would also reflect this year's theme as it was November 2019 when SARS-CoV-2 is thought to have arisen according to phylogenetic studies. Almost a year later, SARS-CoV-2, now known as Covid-19, is still a large part of our lives, bringing immense hardship, lifestyle changes, the worst and also the best in humanity.

Malaysia is currently on the third wave of Covid-19, as we have learned from the previous wave, we are better prepared. However, it does not make it any easier. The #kitajagakita (we take care of us) is true of Malaysia's approach towards Covid-19. In support of our front-liners, the College of Radiology, Academy of Medicine Malaysia, donated

Powered Air-Purifying Respirators to hospital in East Malaysia to assist with the equipment shortages.

As Albert Einstein said, "The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking." Covid 19- has forced change on our regular process, hospital guidelines, patient care, teaching, exams, and business models. Here to celebrate IDOR 2020 theme, the College of Radiology Malaysia would like to present the challenges imaging professionals faced over the past months and celebrate their dedication towards this profession during these
challenging months. We will present viewpoints from teaching hospitals, District hospitals and General hospitals in Malaysia. Let's listen to their story.

Prof Dr Norlisah Ramli
President College of Radiology

A PANDEMIC THAT CHANGED OUR MEDICAL PRACTICE AND TRAINING – FOR BETTER OR WORSE?

Being a radiologist and lecturer in one of the largest teaching hospitals in the country, my colleagues and I were tasked with figuring out how to train radiology trainees during this challenging time? Our institution was one of the few COVID-19-designated hospitals, with admissions increasing daily. Elective operations, daycare centres and outpatient clinic appointments were reduced tremendously (to 20% of normal). Elective imaging and image-guided procedures were mostly postponed in the radiology department, except for oncology or urgent in-patient requests. At one point, trainees were redeployed to critical clinical areas, such as the emergency department and COVID-19 screening tents. All research projects were suspended to stop research assistants and elective patients from unnecessarily entering the hospital.

To ensure continuous education to the radiology trainees, teaching sessions were held as a virtual class via online platforms such as Zoom, Microsoft Teams, or Google Meet. Radiology reporting and viva training classes were also conducted weekly in order to help expose trainees to as many cases as possible. As we were in a tertiary hospital, multidisciplinary team discussions (MDT) with various specialties and subspecialties were continued, dealing with complex cases that could not be postponed. These MDTs were also converted to virtual meetings using secured online meeting platforms. Trainees were encouraged to participate remotely in the MDTs, to reduce interference with daily work.

As many front-liners were soon suffering from mental stress and fatigue due to the increasing patient load, we rotated trainee deployment, hoping to reduce their stress and anxiety by taking turns. This redeployment also served as an opportunity for radiology trainees to stand in solidarity with colleagues from other specialties in managing patients and combating one common enemy, the COVID-19.
colleagues from other specialties in managing patients and combating one common enemy, the COVID-19.

On top of that, the incidence of accidental healthcare staff exposure to unsuspected COVID-19 increased during the wave peak. We ensured that every staff wore appropriate personal protective equipment (PPE) based on the type of procedures and patients (i.e., oxygen-dependent, aerosolizing oxygen support, non-oxygen dependent, symptomatic with cough).

Rapid dissemination of information among colleagues and staff was done through instant messaging platforms such as Whatsapp, WeChat or Telegram. The COVID-19 task force was formed within the department, with a designated person being in charge of tracking staff and trainees that were potentially exposed to positive patients by accident. The internal task force worked in tandem with the hospital's task force consisting of members from all disciplines.

Undoubtedly, we have headed to a new normal in medical education and practice. However, rapid adjustment and adaptation to this situation have brought unique insight and approaches to our training program, which also proves to be more sustainable in the future.

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“I'm proud to say radiology played a vital role in Covid-19 patient management right from patient admission at the staging center, wards, and the emergency department.”

LONGING FOR THE MAJESTIC MOUNT KINABALU AND THE PICTURESQUE VIEW IN SEMPORNA, WE WILL SHIELD AND FILTER YOU AWAY.

The first wave of the pandemic still lingers freshly in our minds. When the number of cases was at its peak in the west, we always felt safe in Sabah, especially here in this remote part of this beautiful east coast of Sabah, Tawau. We thought we were far away and safe from what was happening back home. I still remember viewing the 1st chest radiograph of a patient with a suspicious clinical background and a positive history of travel to a badly affected state in the peninsula. We opened our journals and sure enough, we were looking at the first chest radiograph of a Covid 19 patient in Tawau. Excitement plus fear was our first reaction. Of course, the excitement was because we get to see how this disease looked on a radiograph. The patient succumbed to the illness a few days later. Covid-19 officially made its existence felt in Tawau and it was very real. We had to figure out how this small hospital multidisciplinary government hospital serving a large community came up with a contingency plan to battle this pandemic.

Being an unprecedented experience for all of us, there were minor hiccups along the way. Still, everyone stood together in solidarity and adjustments were made along the way in the standard operating procedures (SOP) for managing these patients. The first and second wave came and passed. We were ready and were above the situation at any given time. Unfortunately, the 3rd wave hit hard with the epicenter directly placed in our proximity. This time we were caught off guard as the numbers were overwhelming.

Nevertheless, every department and hospital management did not flinch and gave their utmost experience to manage the workload. It's hard to believe that this is the first experience for most of us as the situation was very well organized, SOP's were evolving to make sure nobody was burdened in the process. Every department faced challenges in patient's management. Their clinics and wards had to be surrendered to create a place for new Covid-19 wards as patients came in droves every day; nevertheless, regular patients seeking medical help and follow-ups were not shunned. The new hospital (Hospital Medan- a hundred bedded hospital) with the armed forces' collaboration was established within a few weeks. This was a significant achievement for everyone as the Ministry of Health, with the Armed Forces' help, was swift to set up this place. The stable patients were transferred here for the continuation of care. And of course, with every new establishment comes the next big issue, staff. KKM addressed staffing issues by sending recruits from the peninsula. Thankfully for Radiology, we received new equipment such as a mobile X-ray and a total of 6 new Radiographers were mobilized to cope with our workload.

Suited before our procedures
I'm proud to say radiology played a vital role in Covid-19 patient management right from patient admission at the staging center, wards, and the emergency department. We are also committed to assisting the forensic department in managing brought in deaths (BID) by performing chest radiographs.

Chest radiographs were used to guide the stage and prognosticate patients once they arrive at our center. Dedicated radiographers were always ready to be called upon once a new patient comes to the staging center. In this current 3rd wave, we perform about 100 chest radiographs in a 12-hour shift. Radiographs for unstable patients are done in the Covid wards by a separate team of radiographers. As such, we have the radiographers working around the clock serving these various requests most efficiently. In these times of difficulty, these dedicated radiographers stepped up their services even though the staff number is quite limited.

Apart from radiographs, CT's were also performed if requested for these unstable patients to monitor the disease progression. All these radiographs and CT are interpreted by our radiologists and medical officers promptly to help clinicians make the appropriate decisions. The number of cases has increased fourfold based on our recent census in this third wave and still, no one, the radiologist, medical officers, nor staffs of all levels have expressed their distress or discomfort.

There were moments where half of us were exposed and quarantined as a result, but services were not disrupted. Despite being a Covid hospital, we still perform quite a number of ultrasounds, basic intervention procedures and CT scans for the non-Covid appointment and urgent cases. Though mentally and physically tired at times, the encouragement given by our peers, hospital director, various disciplines, and the ministry drives our spirit towards serving these people in need and strive to attain our common goal, which is to curb this pandemic as we did in previous times. As part of this beautiful fraternity (radiology), we are committed, confident, and ever ready to serve when needed.
Our dedicated team of the department of radiology Tawau

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Radiology Specialist
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My acknowledgements to the radiologists Dr Adi afiq, Dr Mohana Letchumanan, Dr Nik Shah, En Mohd Halmi shamsudin (on behalf of radiographers) and Hosp director Dr Norlimah Arsad.

MALAYSIA'S FIGHT AGAINST COVID-19. WE ARE IN THIS TOGETHER: RADIOLOGY'S DEPARTMENT EXPERIENCE.

INTRODUCTION:
It has been 10 months since the first COVID-19 case detected in Malaysia and the fight is not getting any easier. At the time of writing, Malaysia is facing its third wave with hundreds of cases reported daily, just a few months after we successfully flattened the curve.

We are writing this article to share our previous and ongoing experience in working together with other healthcare personnel. Our main involvement is in the facilitation of diagnosis and recognition of possible complication from the disease.

Hospital Sungai Buloh (HSgB)

Preparation:
HSgB is the trauma and infectious disease center in Malaysia. During the first wave of COVID-19, the hospital was designated to be the country's main COVID-19 hospital and remains so to date. The service was extended to Pusat Kawalan Kusta Negara (PKKN) which is a part of HSgB, and Institut Latihan Kementerian Kesihatan Malaysia (ILKKM) which is the neighbouring allied health college, to house the low-risk COVID-19 patients. Being an infectious disease hospital, HSgB is used to respond to infectious disease outbreaks like Avian Flu and Middle East Respiratory Syndrome (MERS) coronavirus. We in Radiology have to respond to the need for imaging once patients get admitted to our hospital. We are quite used to the alert and have a standard operating procedure (SOP) in place on our response. Unlike the last few outbreaks, this outbreak is huge and protracted. It is a PANDEMIC and therefore we have to come up with strategies to cope with the demand in imaging and to ensure service continuation of service. In preparation for the influx of patients, just like other departments, the radiology department immediately activated the pre-existing committee, led by radiologists with participation of medical officers, radiographers and staff nurses. The discussion was focused on revision of the SOP for COVID-19 and non-COVID-19 patients. The SOP was also aimed at maintaining the safety of staff. Workflows were created and distributed to the whole hospital.

Staff worked tirelessly to facilitate the incoming patients by preparing clean and 'dirty' pathways in the department, setting safe seating distance for patients, whom are waiting for imaging/procedure and many more. The elective and non-urgent appointments had to be re-scheduled. The urgent, non-COVID cases were transferred to the nearby hospitals for continuation of care, mostly after having their necessary imaging done in our hospital.
After studying the pattern of COVID-19 on imaging, our thoracic radiologists developed a standard and comprehensive template of reporting. This was followed by educating the fellow radiologists on COVID-19 imaging pattern, mainly on chest radiographs and computed tomography (CT).

Anticipating the need for direct contact with the patients especially during x-ray taking, ultrasound and interventional procedure, staff was also trained on the 'donning and doffing' of the personal protective equipment (PPE).

Reminders on the importance of adhering to the SOP were pasted on announcement boards, reporting rooms etc. Occupants in closed-space rooms were also limited including reporting rooms, counter, pantry etc.

Outbreak in the workplace was one of our dreadful nightmares, which could result in collapse of the department. Therefore, apart from enforcing a strict SOP at the workplace, we divided our staff into COVID-19 and non-COVID-19 teams, hoping that these teams would not mix with each other, reducing the risk of cross-team infection.
Action:

With all the preparation in place, the influx of COVID-19 patients during the first wave to the third wave, was handled seamlessly. This goes without saying that we did struggle in the beginning but we learned and we still are.

In HSgB, we were accustomed to trauma and neurology/neurosurgery cases but things changed with COVID-19. We are now more familiarized with the patterns of COVID-19 on chest radiographs and CTs. We have to report hundreds of COVID-related chest radiographs and tens of CT thorax/pulmonary angioraphy daily. These are necessary as imaging does play crucial role in management of patients in the ward. Although as radiologists, we could not assess the patients clinically, we were able to evaluate progression of illness by reviewing the interval changes in the radiographs. We also took the opportunity to carry out cross-sectional studies on the disease.

There were times when we were needed to perform ultrasound on COVID-19 patients. This posed new challenges as we needed to protect ourselves as well as our machines, and scanning patients in the PPE was not easy.

Our colleagues in the Interventional Radiology (IR) unit also jumped on the bandwagon by performing procedures on COVID-19 cases such as drainage, biopsy and embolization, as more often than not, these patients come with concurrent illnesses.

Almost half of our medical officers were deployed to the COVID-19 areas to help their fellow colleagues in treating patients. This left the remaining medical officers to work twice as hard to safeguard the department.

Our radiographers on the other hand, worked around the clock, donning the full PPEs and performing x-rays on all the patients, in the main building and PKKN. Some patients, especially the unstable ones needed more frequent repeated x-rays.
On-going challenge:

This pandemic is undoubtedly overwhelming for everyone, especially for healthcare workers. There were times when our colleagues and staff were burnout, anxious and knackered. Thankfully, the psychiatric department offered psychological first aid for such instances.

We are extremely proud to be a part of the HSgB team in the COVID-19 fight, the team that has been recently recognised by the Global Health Awards (GLA) for our effort towards curbing the infection.

Everyone realizes that the war is far from over and win we must! The clinicians and ward staff depend greatly on radiology. Having that in mind, we continue providing our service and work hand in hand with everyone to fight this invisible enemy.

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Special thanks to Dr Yun Sii Ing (Head of department) as well as Dr Mohd Nazlin Bin Kamarudin, Dr Chai Jan Jan, Dr Norshahrizal Bin Nordin and other radiologists for their help in writing this article.
THE MASTER OF RADIOLOGY EXAM DURING THE TIME OF COVID-19

The Master of Radiology programme in Malaysia is a 4 year programme that commenced in the year 1984. Initially, only the National University of Malaysia (UKM) offered this programme, followed by University of Malaya and University Sains Malaysia (USM). Currently, the programme is run by a Conjoint Board consisting of a total of 6 Universities. The exams are run twice a year and the number of students has steadily increased over the years to answer to the demand of the speciality nationwide. A curriculum review is held once every five years to ensure that the programme's standards are met and, in turn, that the training moves in tandem with the ever-changing world of technology.

Currently, we have 3 phases of training and an exit exam at the end of each Phase. The Phase 1 exit exam (after 1 year of entry into the programme) consists of 4 components, namely the Objective Structured Practical Exam (OSPE), Objective Structured Clinical Exam (OSCE), Viva-voce and the written Multiple Choice Question Paper. The Phase 2 exam consists of 3 components, the Viva-voce, Single best answer (SBA) written papers and the Film reporting component. The Phase 3 exam is the exit exam from the programme and consists of 4 components: the Research report, Case studies, Viva-voce and a Rapid Reporting Assessment. The exams are usually run simultaneously by the Conjoint Board and this takes place in one particular centre per year decided upon by the Chair of the Conjoint Committee. This year the exams were supposed to be held in KPJ University College in Nilai in May. This situation took a drastic change in the light of the Covid 19 pandemic.

A Movement Control Order (MCO) was announced on 18th March 2020, which was extended to 12th May 2020. This was followed by the Conditional MCO and then the Recovery MCO, which was announced from 7th June 2020 to 31st December 2020. In light of this situation, the Clinical Master exams in all disciplines were postponed by 6 months nationwide. The new date for the Phase 1 exam was fixed for 14th October 2020. Still, unfortunately, due to a rising number of Covid 19 cases in the Klang Valley, the Government announced a return of the CMCO from 17th October 2020 to 9th November 2020.

This changed the exam's entire logistics as the students were not allowed to travel to Nilai and were not allowed to cross districts. The Conjoint Board had to have an Emergency meeting regarding this. It was decided that the exams would be held at each University to minimise travel. The Deans Council also revealed an SOP for the clinical exams, which we were advised to follow.

To ensure fairness and standardisation of all the exams, an emergency online vetting session was done by the Universities and a bank of questions for the viva were chosen.

The first exam to be held was the OSPE exam on the 14th of October. The students were screened via a health declaration form and temperature monitoring. There were strict sanitisation guidelines that were adhered to and the two patients used in the exam were asked to wear face shields apart from the mask. Examiners were also screened in the usual manner.
The written paper held on 15th October was done with similar precautions and social distancing. The viva voce exam was held in large rooms that could accommodate two examiners and the student being examined. Strict sanitisation was practised throughout all these exams. After the exams were completed, the Conjoint Board of all 6 universities met online to finalise the results. Overall, the majority of examiners and lecturers from all the Universities, were satisfied with the running of the exam. It is not ideal to examine your own students due to a tendency to be biased, but since the questions were standardised, this was thought to be acceptable. It was decided that the upcoming Phase 2 and 3 exams in November 2020 be held similarly. We hope that once this pandemic has run its course, we will retain some of the changes that we have made to the exam process. Having standardised Viva questions added and element of fairness across the board and I believe it is a better predictor of the knowledge of the student. All in all the pandemic made us change some practises for the better.
STANDARD OPERATING PROCEDURE (SOP) FOR ATTENDING CLINICAL SPECIALIST POSTGRADUATE EXAMINATION DURING RMCO

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CHALLENGES AND CHANGES IN SERVICE DELIVERY AMONG RADIOGRAPHERS DURING THE COVID-19 CRISIS

Imaging is essential in assessing the severity and progression of COVID-19. When imaging is concern, the radiographers play a vital role in performing and producing optimum image quality to support clinical decision making in the diagnosis, management and treatment of COVID-19 patients.

As radiographers are one of the first line of health professionals that require frequent contact with confirmed positive patients or suspected infected patients presenting with respiratory symptoms during the process of examination (typically chest X-ray or CT chest), they are more exposed to infected persons. This has naturally heightened the radiographers' anxiety level. More so with information and control strategies regularly evolving as new information on the virus becomes known.

The radiographers from one of the largest teaching hospitals in the country are not left behind from the challenges of the global pandemic of COVID-19. In the Department of Biomedical Imaging, University of Malaya Medical Centre (UMMC), Kuala Lumpur (KL), a COVID-19 Task Force team was formed in the wake of the global pandemic to look into new challenges and changes in the service delivery. In terms of preparing our staff to face the new situation, changes were administered in regards to work processes, management of human resources (divided into teams in anticipation of accidental exposures to COVID-19 patients and the need to undergo quarantine processes, if necessary) and handling of imaging equipment (e.g. prior preparation and post examination decontamination process). Besides that, several stimulation sessions on donning and doffing Personal Protective Equipment (PPE) and handling of COVID-19 patients were conducted, reminders on hand hygiene compliances disseminated and preparedness on crisis management was organised, should the need arise.

“During the first wave of the pandemic, in the true spirit of #KitaJagaKita saw many radiographers being innovative in preparing the PPEs (e.g. head covers, gowns, shoe covers & etc.) from non-woven fabric and diligently taking turns applying their sewing skills.”}

Stimulation of donning and doffing PPE  Stimulation of handling COVID-19 patients
During the first wave of the pandemic, in the true spirit of #KitaJagaKita saw many radiographers being innovative in preparing the PPEs (e.g. head covers, gowns, shoe covers & etc.) from non-woven fabric and diligently taking turns applying their sewing skills. In addition to this, self-made face shields from easily reproducible items such as strings, sponges and clear plastic sheathes were prepared creatively to ensure sufficient stock was available to carry out their duties safely and confidently during these precarious times.

During the early phase of the pandemic, there were marked increase in the request of mobile radiography examinations at designated COVID-19 wards and emergency areas as to avoid possible transmission during patient transfer to imaging department. As part of the new workflow, the Radiographers would decontaminate the mobile equipment and shower after handling the COVID-19 patients.
The COVID-19 pandemic is evolving continuously. What is certain is that imaging will continue to play a pivotal role in supporting clinical decision-making. Therefore, having a positive mind set is important. Radiographers, as frontline staff, should be familiar with the key challenges related to imaging patients with COVID-19. This is essential so that they can fulfil their role in ensuring patient safety, patient care and optimise image quality as a tool for more accurate diagnosis.

Most importantly, radiographers should be aware of ways to keep themselves safe and well during this unprecedented situation by adhering to the new normal (e.g. social distancing, hand hygiene compliance & etc.), using the right PPE and ensuring all their workspaces are adequately decontaminated to minimise the risk of further infection.
In summary, three key learnings during this COVID-19 pandemic are, it’s important to work as a team, essential to have a positive mindset and “Together with great TEAMWORK and POSITIVE MINDSET…ANYTHING IS POSSIBLE!”

With that, we would like to take this opportunity to express our gratitude to all those who have donated essential items during this challenging time to show their support. Thank you very much! Your generosity and kindness are much appreciated!

The fight for COVID-19 is not over yet! We can win this together! Here from the Department of Biomedical Imaging, UMMC, KL our journey continues…!

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#UMMC #PPUM #KitaTeguhKitaMenang #KitaJagaKita #MalaysiaPrihatin #StayAtHome #StaySafe
"UNPRECEDENTED"
"#NEWNORMAL"

These are among the most often used words to describe the current state of affairs. Indeed, a viral outbreak of this scale has not been recorded before in human history. We were caught unawares by a new and unseen adversary.

"The only constant in life is change" - Heraclitus

As Heraclitus said, the only certainty in life we have is that things are constantly in motion and evolving. This is something that many, including I have taken for granted, what with the array of modern conveniences available to us with the advent of the internet making information and shopping available to us with but the tap of a finger.

The increase of Covid cases has posed many new challenges. New standard operating procedures (SOP) had to be followed such us strict personal protection and frequent sanitisation. Information on Covid19 pathophysiology as well as its radiological manifestations had to be constantly kept abreast as new discoveries were being made progressively.

Our resource allocation and management skills were also put to the test as we were stretched thin in many aspects

"Necessity is the mother of invention" - Plato

However, being posted in Hospital Lahad Datu, Sabah which is in the northern region of Borneo has posed numerous challenges, owing to its unique topography and varied populace.

It is the fourth largest town in the state and is also the most remote in logistical and geographical terms.

By land it is approximately 7 hours away from the capital city of Kota Kinabalu which is situated on the opposite site of the state.

By sea access is somewhat limited due to absence of a large deep-sea port

Access via air is limited as the airport was built to cater to light aircraft only.

Needless to say, shipment of supplies and equipment has always proven to be challenging. As such, we and the local populace have always had to make do with whatever we had in the initial stages.
No doubt things were difficult, however as time went on, we became more accustomed to new practices and were able to better respond to new challenges.

Thankfully our efforts did not go unnoticed and we received aid in the form of additional manpower and new equipment.
"We cannot direct the wind, but we can adjust the sails" - Dolly Parton

It is without doubt that this pandemic has brought many adjustments and changes to our lives, undoubtedly more unpleasant than pleasant changes. Though the current event is unprecedented, we have weathered many other calamities before in the past, which were at that time unprecedented as well.

#kitamestimenang

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