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been placed to gauge the effectiveness of vaccination in preventing severe disease and death in ESKD patients with COVID-19 infection.

**Methods:** A retrospective observational study whereby we reviewed the electronic database of all dialysis-dependent patients who were admitted to four hospitals (Penang General Hospital, Seberang Jaya Hospital, Bukit Mertajam Hospital and Kepala Batas Hospital) in Penang, Malaysia for COVID-19 infection, from 1<sup>st</sup> March 2020 till 31<sup>st</sup> August 2021.

**Results:** There was a total of 153 admissions. 60 patients were admitted to Penang General Hospital, and the remaining 93 were admitted to the other three hospitals. 96 (63%) patients were male and 57 (37%) were female, with mean age of  $59.5 \pm 12.5$  years. Five patients were on Continuous Ambulatory Peritoneal Dialysis (CAPD) while the others were on regular hemodialysis. 139 (90.8%) patients had hypertension, 123 (80.3%) had diabetes mellitus, and 41 (26.8%) had cardiovascular disease.

At presentation, most patients had mild disease and did not require oxygen supplementation. 31 (20.3%) were asymptomatic (Category 1), 65 (42.5%) had symptoms without pneumonia (Category 2) and 21 (13.7%) had pneumonia but did not require oxygen support (Category 3). A smaller but significant proportion required oxygen supplementation at presentation. 30 (19.6%) needed oxygen therapy (Category 4). 6 (3.9%) were critically ill, requiring high flow nasal cannula or invasive ventilation (Category 5).

Subsequently, during admission, their disease progressed. The number of Category 3 patients doubled to 45 (29.4%) and a larger proportion of patients had required oxygen supplementation, with 51 (33.3%) patients deteriorating to Category 4. There was a total of 31 deaths (20.3%).

During this study, Malaysia's National COVID-19 Immunization Programme was administering vaccines which required two doses (Sinovac, AstraZeneca and Pfizer-BioNTech vaccines). Most (85 patients, 55.6%) had not been vaccinated. 11 (7.2%) had received 1 dose, and 57 (37.2%) had completed 2 doses.

Patients who had been vaccinated fared better than their unvaccinated counterparts. 47.1% of unvaccinated patients required oxygen therapy (Category 4-5) at some point of their disease as opposed to only 25% of patients who had received at least one dose of vaccine ( $p$  value = 0.005). Among the mortalities, most (64.5%) had not been vaccinated.

**Conclusions:** ESKD is an important risk factor contributing to COVID-19 mortality. The mortality rate in ESKD patients with COVID-19 disease is high (20.3%) and most (64.5%) were not vaccinated. Patients who were unvaccinated had more severe disease.

No conflict of interest

## POS-951

### THE EVOLVING PRACTICE OF NEPHROLOGY DURING THE COVID-19 PANDEMIC IN BRUNEI DARUSSALAM



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**Introduction:** Brunei had success in combatting the first wave of the COVID-19 pandemic with no local transmissions for over a year, until August 2021 when we started experiencing the second wave. In the timespan of <2 months, the pandemic has led to significant changes to nephrology practice in the country. Looking after the vulnerable dialysis population amidst a rapidly evolving crisis requires a swift and adaptive response.

**Methods:** We describe here the development of current practice relating to the management of our kidney patients during the crisis.

**Results:** At the time of writing, there have been >6000 confirmed cases (1.5% of the general population). Hemodialysis (HD) patients (2.1%) are affected more than peritoneal dialysis (PD) patients (1.1%). Ensuring smooth operation of HD service during this crisis is resource intensive. We have adopted many evidence-based strategies (Figure 1) to reduce transmission in our HD units. 1 out of the 7 HD units in the country has been converted into a national quarantine HD unit which caters for patients under quarantine. Within this unit, we further risk stratify and segregate patients by different shifts and physical separation. The single side room in this unit is also used for dialysing COVID-19 patients in the community, while waiting for their admission to the National Isolation Center. Due to shortage of nurses, we reduce HD frequency to twice weekly, with monitoring for hyperkalemia and high interdialytic weight gain. Preliminary data has not shown any significant increase in incidence of hyperkalemia and hospitalizations for fluid

overload. Antigen rapid tests are used before each HD session, either as drive-through (Figure 2), on-site or self-testing at home. As of today, we have used more than 4000 kits, with 100% sensitivity and 99.8% specificity. We successfully lobbied the government to reopen the operating theatres just for PD catheter insertion. PD is prioritized over HD in all incident patients initiating on dialysis. We also extend this initiative to convert existing HD patients to PD. The current capacity allows us to insert 4 PD catheters per week, as opposed to 1-2 cases per month before the current crisis. By the end of 2021, we are expecting >60% increase in the PD prevalence. New patients are trained on CAPD instead of APD due to the shorter training time required. This is done in-person but also supplemented by use of telehealth. Routine blood tests, kt/v and PET are deferred. All transplants are suspended. Clinics are reduced to only urgent cases. Virtual clinics using telehealth are being explored, to ensure continuity of care. Patients on Recormon are taught to self-inject, and the remaining are converted to Mircera to reduce their clinic visits. Another important initiative is the prioritization of COVID-19 vaccination for our dialysis population. This is done through in-center vaccination and setting up a vaccination team to cater for the CKD, PD and transplant patients. With this initiative, we have boosted the full 2 doses vaccination rate from <5% before the second wave to >70% in less than 2 months.

Advice patients to stay at home and not turn up at dialysis facility if unwell.
Ensure triaging (contact/travel history, fever, influenza-like illness) before allowing entrance into the facility.
Security checkpoints to ensure no patients on quarantine order are allowed entry to the facility.
Physical distancing in waiting areas.
Every patient to use a fixed station throughout, preferably with the same nurse, for ease of contact tracing if needed.
Compulsory wearing of surgical masks by all patients throughout the HD sessions.
Discouraged to eat or drink throughout the HD sessions.
No visitor policy.
Educate all staff on the importance of hand hygiene and use of personal protective equipment (PPE).

Figure 1

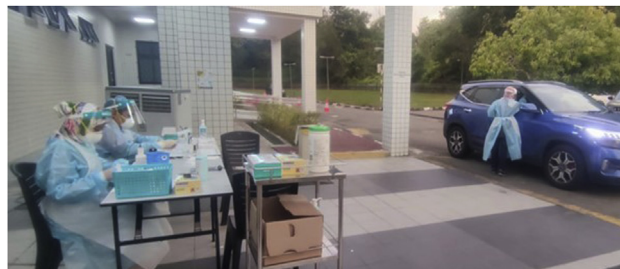


Figure 2

**Conclusions:** The lasting effect of COVID-19 will continue to impact all aspects of nephrology. As we move into uncharted territory, we need to explore creative ways with flexibility and clear strategies, to implement dialysis care and for emergency preparedness in the future.

No conflict of interest

## POS-952

### COVID-19 AND IMPACT ON PATIENTS AND STAFF IN TANKER FOUNDATION



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**Introduction:** In terms of morbidity and mortality, the SARS COVID-19 infection had a tremendous impact on Indian healthcare. The illness has resulted in a high number of hospitalizations with well documented renal consequences. Moreover, because of this illness, patients with pre-existing conditions, such as chronic kidney disease, are more likely to have negative results. Here we present the results of COVID-19-positive, end-stage renal disease patients and the consequences of the pandemic on staff services in a charity-run haemodialysis centre.

**Methods:** This observational study was conducted at Tanker Foundation.

All patients undergoing dialysis (126) + the employees working at the haemodialysis units (107) were included in the study.

Statistical analysis was performed using SPSS version 26 (IBM, New York).

**Results:** One hundred twenty-six patients received dialysis regularly in charity-run centres during the research period, and all of them tested