


# A Descriptive Study on Hospital-related Coronavirus disease 2019 (HrCOVID-19) among Chronic Kidney Disease Patients during the Pandemic at a Tertiary Center in the Philippines


Ia Marie Donna B Cruz, MD; Myrna T Mendoza, MD • Division of Internal Medicine, National Kidney and Transplant Institute • Quezon City, Philippines

## OBJECTIVES



The study aimed to determine the incidence of hospital-related COVID-19 (HrCOVID-19) among chronic kidney disease (CKD) patients in a specialty medical center in the Philippines

## METHODS



The study was done at National Kidney and Transplant Institute (NKTi), a tertiary center in the Philippines specializing in genitourinary illnesses and post-solid/hematopoietic transplant. It covered the period of April to September 2020.

Case Definitions:


- Confirmed COVID-19  
Documented infection with SARS-CoV-2 as detected via rt-PCR
- Hospital-related COVID-19 (HrCOVID-19)  
Confirmed COVID-19 in an admitted patient for no less than 14 days with signs and symptoms of pneumonia

Inclusion Criteria

- Admitted patients aged ≥18 years old with an initial diagnosis other than hospital acquired pneumonia (HAP), and with either
  - Initially non-reactive rt-PCR that subsequently turned reactive during HAP investigation, or
  - Reactive rt-PCR for COVID-19 during investigation for HAP, or
- Adult patients admitted prior to the pandemic who subsequently developed HAP plus reactive rt-PCR for COVID-19 within the study period.

- A retrospective descriptive cross-sectional design with record review was done.
- Outcome categories, either discharged alive or mortality, were identified.

## RESULTS



Twenty-nine patients were included, predominantly males (55%) with mean age of 47 ± 14 years. Most cases were on maintenance renal replacement hemodialysis (52%) followed by peritoneal dialysis (34%).

Median length of hospital stay to HrCOVID-19 confirmation was 24 days. An overall incidence rate of 1.26% (95% CI: 0.84-1.80) was seen, and peaked at 2.35% (95% CI: 1.13 – 4.28) in June 2020. Overall mortality rate was 45%.

Table I. Incidence of Hospital-related COVID19 among adult admissions, per month (2020)

Month	Admissions	HrCOVID-19	% (95% CI)
APRIL	237	2	0.84 (0.10 – 3.01)
MAY	323	5	1.55 (0.50 – 3.58)
JUNE	425	10	2.35 (1.13 – 4.28)
JULY	472	10	2.12 (1.02 – 3.86)
AUGUST	425	2	0.47 (0.06 – 1.69)
SEPTEMBER	423	0	0 (0 – 0.87)
TOTAL	2305	29	1.26 (0.84-1.80)

Table II. Morbidity and mortality outcomes according to classification of HrCOVID-19

	Overall (n=29)	Moderate (n=11)	Severe (n=10)	Critical (n=8)
Length of stay from ER to HrCOVID-19 confirmation (days)	24 (12-72)	22 (17-35)	29 (18-72)	20 (12-46)
Mortality (%)	13 (44.83)	0 (0)	5 (50)	8 (100)

## DISCUSSION

- The incidence of HrCOVID-19 in our setting was lower than others<sup>1-3</sup> but comparison requires context due to heterogeneity of definitions. At present, a unified definition for HrCOVID-19 is not yet available.

- A conservative period of >14 days was adapted in our institution given the burden of community transmission, known incubation period<sup>4,5</sup>, and possibility of false-negative rt-PCR tests. A simulation of in-hospital SARS-CoV-2 transmission<sup>6</sup> demonstrated lower nosocomial cases when community incidence was high. Adequacy of PPE also likely mitigated transmission.<sup>7</sup>
- Despite the low incidence, our cohort had a 49% mortality rate which was higher than studies on both community acquired-COVID-19 in CKD patients,<sup>8-10</sup> and nosocomial COVID-19 in more varied populations.<sup>1,2</sup>
- Delay in diagnosis, and limited COVID19-directed therapies may be contributory. Medical contraindications or limited evidence preclude therapeutics in the CKD population.<sup>4,11</sup>
- A study comparing CKD patients with community acquired versus hospital related COVID-19 is desirable to conclusively identify risk factors for HrCOVID-19 mortality.

## CONCLUSION

Incidence of HrCOVID-19 among CKD patients was low but has high mortality rates. Active identification, containment and prevention of in-hospital transmissions to achieve zero cases is desirable.

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