APRU Global Health Conference 2021
GLOBAL URBAN HEALTH
16-18 November 2021
The University of Hong Kong, Pokfulam, Hong Kong

Abstract No. 28 Seroprevalence of COVID-19 among Healthcare Workers in Hong Kong: a Longitudinal Cohort Study

Theme **Infectious diseases**

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Background:

- Hong Kong has invested heavily in hospital infection control and pandemic preparedness after the Severe Acute Respiratory Syndrome (SARS) epidemic in 2003.
- The healthcare infrastructure developed by this investment had has been successful in limiting nosocomial transmission during the current COVID-19 pandemic, with healthcare workers making up a relatively low proportion of COVID-19 cases in Hong Kong.
- As asymptomatic cases of SARS-CoV-2 infections can be missed, seroprevalence studies can provide further information of the cumulative incidence of the infection in the community as well as among HCWs.

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Methods:

- We conducted an observational cohort study of healthcare workers with varying exposures to COVID-19 patients.
- Blood samples were collected from participants between June and October 2020 to estimate the seroprevalence of COVID-19 in healthcare workers in Hong Kong.
- Healthcare workers above 18 years old who have been working in public or private hospitals and medical clinics in Hong Kong for at least 6 months prior to enrolment were recruited. Healthcare workers were defined as individuals who provide services in hospitals or medical clinics, including doctors, nurses, technical staff members and auxiliary staff members (such as lab personnel, phlebotomists, cleaners, and catering staff).
- Blood samples were screened for binding and neutralising antibodies using an enzyme-linked immunosorbent assay (ELISA), surrogate virus neutralisation test, and plaque reduction neutralization test (PRNT)[1].
- Seroprevalence was defined as the proportion of blood samples that were positive for antibodies against the SARS-CoV-2 virus measured by PRNT[1].

[1] Perera RA, Mok CK, Tsang OT, Lv H, Ko RL, Wu NC, et al. Serological assays for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), March 2020. 2020;25(16):2000421.

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Results

- We recruited 761 healthcare workers into our study. The median age was 34 years (21 - 65 years), and about 65% were female.
- Most (78.0%) were working in public hospitals or clinics, in clinical departments (65.9%), and about 44% were nurses.
- Almost all participants in our cohort reported at least occasional contact with patients or potentially contaminated areas in the workplace.
- Despite this, none of the blood samples collected were positive for neutralising antibodies.
- Overall seroprevalence in our healthcare worker cohort was estimated to be 0% (95% confidence interval = 0%, 0.5%) despite heavy exposure to COVID-19 patients.

Conclusions

- The overall seroprevalence of COVID-19 among Hong Kong healthcare workers is low relative to other locations.
- This may be the result of lower disease burden in Hong Kong, adequate isolation facilities and compliance with infection control protocols in healthcare settings.
- The findings of this study also illustrate the utility of immune markers to estimate the seroprevalence of an infectious disease such as COVID-19 in healthcare workers, who could be at a higher risk of infection due to occupational exposure to patients.
- Serological surveillance of emerging pathogens among healthcare workers can be useful in pandemic response and preparedness.