

SARS-CoV-2 Serology Surveillance In Asymptomatic Healthcare Workers

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Introduction

There is evidence that some SARS-CoV-2 infections are asymptomatic and a certain proportion will be missed by testing only those with symptoms.¹ As healthcare workers (HCWs) are at risk of infection due to occupational exposure, serological testing can help provide information on the status of infection in asymptomatic personnel.²

This study aims to determine the seroprevalence among asymptomatic HCWs who have worked in COVID-19 designated healthcare facilities during the peak pandemic period.

Materials and Methods

HCWs of various professions with history of direct and indirect exposure and at least 30 work-days' experience, were recruited from three healthcare facilities from 13th April to 12th May 2020. Participation was voluntary with informed consent.

Sociodemographic information, history of contact with positive cases (type of contact/duration), clinical history and adherence to universal precautions were captured using a self-administered questionnaire, adapted from the World Health Organisation (WHO) assessment protocol for HCWs.³

Approximately 3mls of blood was taken to test for anti-SARS-CoV-2 neutralizing antibodies via a surrogate virus neutralization test (sVNT) that has a 99.9% specificity and 95–100% sensitivity.⁴

Results

A total of 400 HCWs were recruited (n=161 from Hospital Sungai Buloh, n=201 from Hospital Kuala Lumpur and n=38 from the National Public Health Laboratory).

Sociodemographic Characteristics

Mean age was 35±7.8 years, and majority were female (74%). A large proportion of participants were nurses, doctors and laboratory personnel (**Figure 1**). Departments with the most participants were medical (32.3%), emergency (17.5%), pathology (13.5%) and anaesthesiology and intensive care (7.5%).

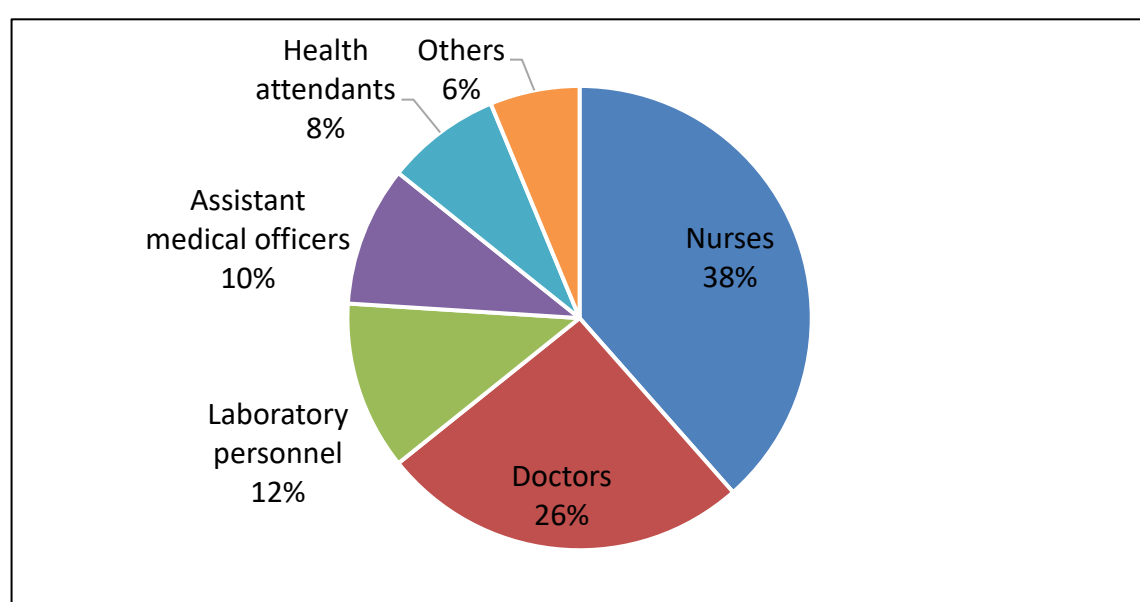


Figure 1 : Proportion Of HCWs By Profession

Exposure History to SARS-CoV-2

About 69% of HCWs had direct contact with COVID-19 patients or their body fluids, and/or contaminated objects or surfaces. One hundred and thirty-five participants (33.8%) reported respiratory symptoms within the month prior to study recruitment.

Adherence to Infection Control Measures

The adherence of HCWs to personal protective equipment (PPE) and compliance to hand hygiene are shown in **Figure 3** and **Figure 4**, respectively.

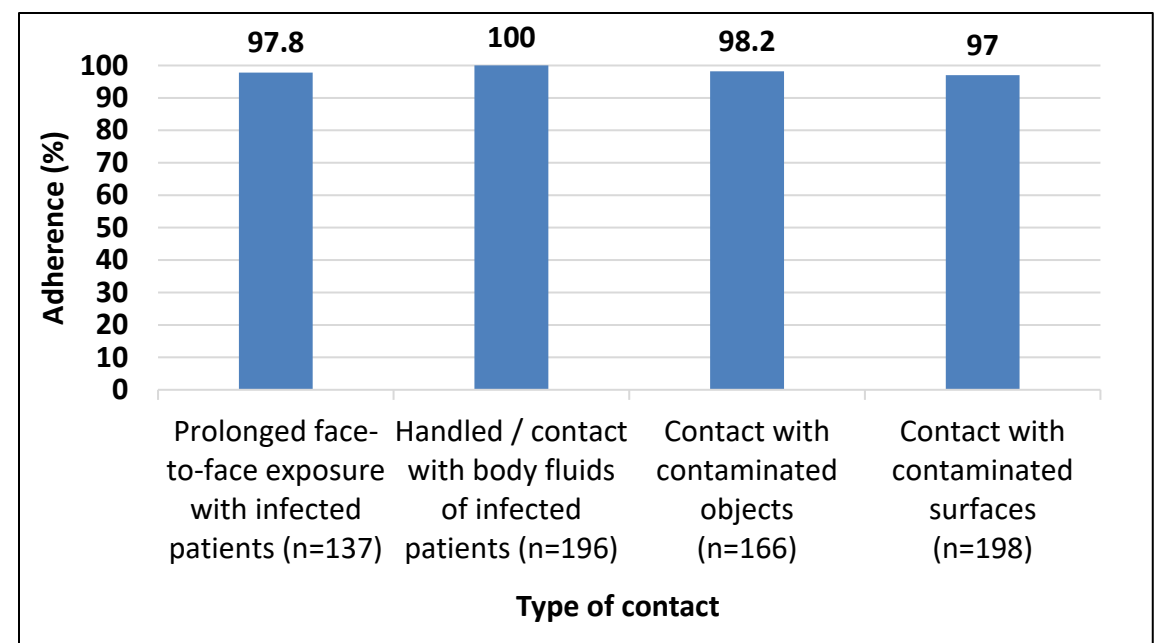


Figure 3: Adherence of HCWs to PPE

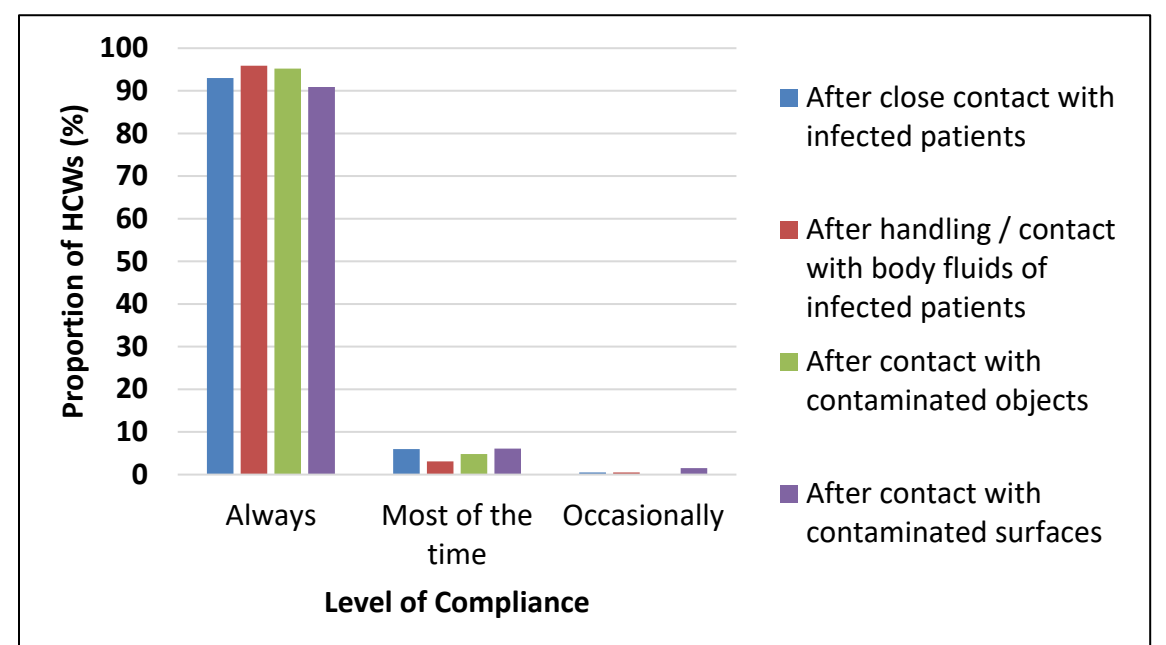


Figure 4: Compliance of HCWs to hand hygiene

Seroprevalence of anti-SARS-CoV-2 Antibodies

None of the participants had detectable anti-SARS-CoV-2 antibodies. (95% CI: 0, 0.0095)

Discussion

Our findings of zero seroprevalence among HCWs are similar to the results of another study done in China, which supports the importance of appropriate PPE usage in HCWs caring for COVID-19 patients.⁵

Limitations of our study include possibility of selection bias due to non-randomised sampling. HCWs who have yet to develop an antibody response in the early stages of infection may also be missed.²

Conclusion

Absence of anti-SARS-CoV-2 antibodies among our HCWs despite occupational exposure suggests that local infection control strategies are effective. Strict adherence to these basic infection control measures may offer substantial protection.

Acknowledgement

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