

SYNOPSIS

03/09/2020

Review of “Escalating infection control response to the rapidly evolving epidemiology of the coronavirus disease 2019 (COVID-19) due to SARS-CoV-2 in Hong Kong”

Article citation: Cheng VCC, Wong SC, Chen JHK, Yip CCY, Chuang VWM, Tsang OTY, et al. Escalating infection control response to the rapidly evolving epidemiology of the coronavirus disease 2019 (COVID-19) due to SARS-CoV-2 in Hong Kong. *Infect Control Hosp Epidemiol*. 2020 Mar 5 [Epub ahead of print]. Available from: <https://dx.doi.org/10.1017/ice.2020.58>

One-Minute Summary

- The authors described a **proactive bundle of infection prevention and control (IPAC) practices** implemented by 43 public hospitals in Hong Kong **immediately after** the December 31, 2019 **announcement of a cluster of cases of pneumonia** of unknown etiology in Wuhan, China. The practices included:
 - **Early recognition via active surveillance** (screening for clinical and epidemiological criteria) from day one and **enhanced laboratory surveillance** (to detect cases with no identified epidemiological risk factors) from day 14.
 - **Rapid diagnosis.**
 - **Prompt isolation of suspect and confirmed cases** in airborne infection isolation room.
 - Application of **Contact, Droplet and Airborne Precautions** for all suspect and confirmed cases.
 - **N95 respirators for all aerosol generating procedures**, regardless of clinical or epidemiological risk factors.
 - **Universal masking** of all health care workers (HCWs), patients and visitors in clinical areas.
 - **Timely IPAC education and Personal Protective Equipment (PPE) training** for staff.
 - **Tracing of exposed patients and HCWs**, who were **quarantined for 14 days**, followed by **medical surveillance of an additional 14 days** with mask use in hospital and community.
- Six weeks since implementing the practices:
 - **42/1275 (3.3%) patients** who fulfilled the clinical and epidemiological criteria for active and enhanced surveillance **tested positive for COVID-19** by a real-time PCR assay.
 - There were **no nosocomial cases among all hospitalized patients** and **none of the 11 HCWs who had unprotected exposure to a case were infected.**

Additional Information

- The scope of the active and enhanced surveillance was **stepped up as the outbreak evolved**.
- The number of cases classified as local transmission increased from 1/13 (7.7%) over the period of day 22 to day 32 to 27/29 (93.1%) over the period of day 33 to 42.
 - 66% of the confirmed cases were transmitted within families.
 - Asymptomatic infection was diagnosed in a 91-year-old patient in one family cluster.
- **Viral RNA was not detected in exhaled air samples** collected from 10 cm at chin level from a patient with COVID-19 while the patient breathed normally, breathed deeply, spoke continuously, and coughed continuously, with and without a surgical mask. Based on this data, the authors suggest that COVID-19 **may not be predominantly transmitted by airborne route**.
- Environmental surface swabs (n=13) were collected from six surfaces in the patient's environment before and after the collection of air samples. **One sample (7.7%) tested positive** (i.e., the window bench). This sample was taken before air sampling occurred, suggesting a role for **indirect contact transmission via fomites**.
- The authors suggest that screening by epidemiological criteria may be of less importance as local transmission grows. **Strict compliance with hand hygiene, universal use of surgical masks by everyone in the hospital, appropriate PPE use (especially during aerosol-generating procedures) are key to preventing nosocomial infections.**

PHO Reviewer's Comments

- Exhaled air samples (n=8) collected from a single patient with a moderate viral load (3.3×10^6 copies/mL in pooled nasopharyngeal and throat swabs and 5.9×10^6 copies/mL in saliva) tested negative. This finding from a single patient over a short duration of time may not be representative of a larger study population. Also, the high air exchanges in airborne infection isolation rooms are meant to swiftly remove any airborne contaminants present, so the air samples taken from that setting may not be generalizable to the general health care environment.
- The authors did not report on the timing of environmental sampling in relation to cleaning, so it is not known how well the sampling results reflect environmental contamination. In addition, viral culture was not performed on the samples to assess viability.

Citation

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