



# The Incubation Period of Coronavirus Disease 2019 (COVID-19) in Petaling District, Malaysia

Ridwan Sanaudi<sup>1</sup>, Ainul Nadziha Mohd Hanafiah<sup>2</sup>, Lee Soo Cheng<sup>3</sup>, Lim Kuang Kuay<sup>4</sup>, Waramlah Ramlan<sup>5</sup>, Diana Raj<sup>5</sup>, Shiehafiel Fieqri Hussin<sup>5</sup>, Roslinda Abu Sopian<sup>1</sup>, Nurul Syarbani Eliana Musa<sup>1</sup>, Mohamed Paid Yusof<sup>3</sup>

1 National Institutes of Health (NIH), Ministry of Health, Malaysia  
2 Institute for Health Systems Research, NIH, Ministry of Health, Malaysia  
3 Petaling District Health Office, Selangor, Ministry of Health, Malaysia  
4 Institute for Public Health, NIH, Ministry of Health, Malaysia  
5 Ministry of Health, Malaysia

NMRR-20-793-54770

## INTRODUCTION

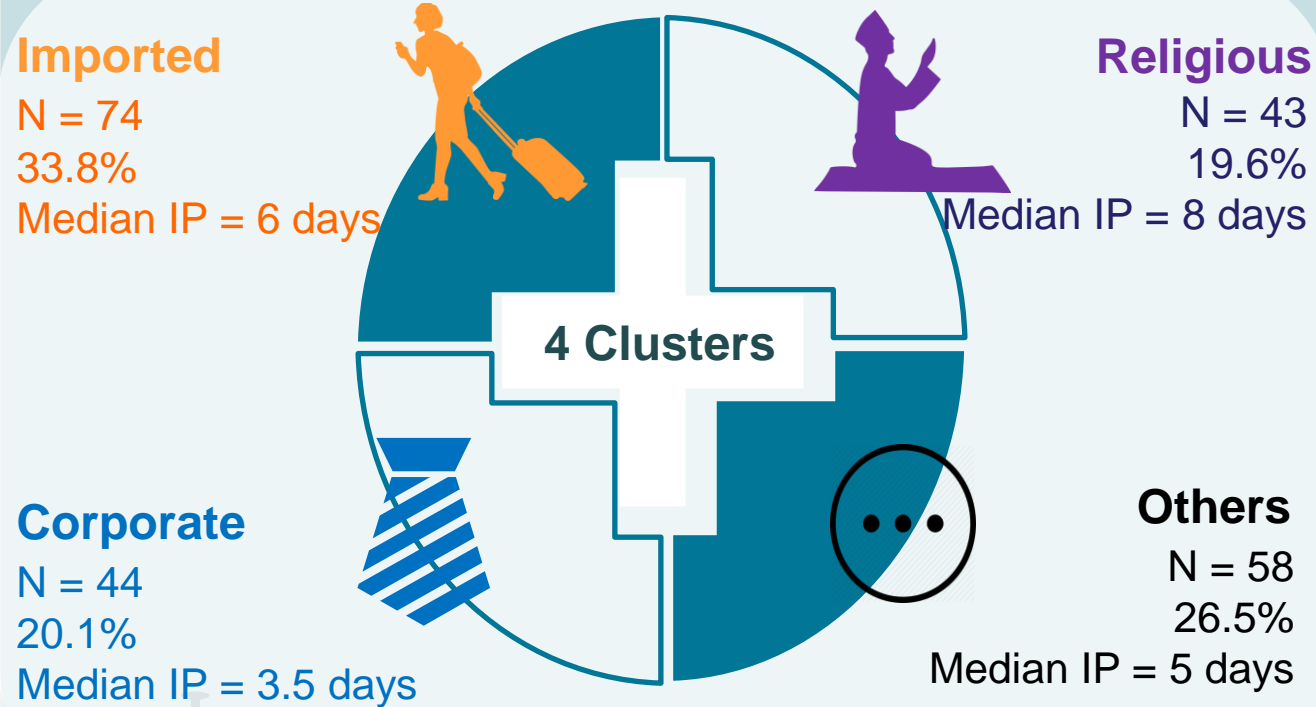
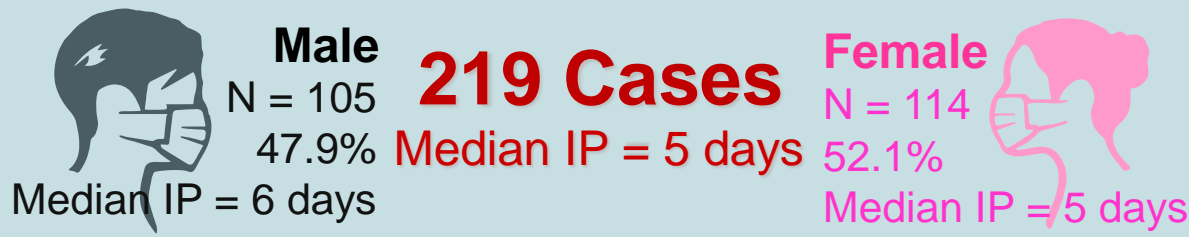
- Globally, over 2 million population have been affected by the COVID-19 outbreak and over five thousand in Malaysia, with almost 100 deaths as of 22 April 2020.
- Knowledge on the **incubation period (IP)** of COVID-19 is scarce due to the novelty of the virus.
- The aim of this study was to **determine the IP of COVID-19** infection in the district of Petaling, Selangor, Malaysia.

## MATERIALS & METHODS

- A cross-sectional study was conducted between 3 February 2020 and 13 April 2020 by using secondary data from the Petaling District Health Office.
- The **IP** was classified as the **time elapsed between exposure to a confirmed case and the date of onset of symptoms**.
- The Kruskal-Wallis test was performed to compare the differences of IP between the groups.

## RESULTS

- A total of **219 cases** were included in this study. Four main clusters were identified; **corporate** (n=44, 20.1%), **religious** (n=43, 19.6%), **imported** (n=74, 33.8%) and **others** (n=58, 26.5%).
- The **median IP** of COVID-19 among the cases was **5.0 days** (interquartile range 3.0-8.0).
- The **longest median IP** was found in **religious cluster** (8.0 days, IQR 4.0-11.0), while the shortest median was corporate cluster (3.5 days, IQR 3.0-6.8).
- Significant **difference** was observed between **corporate** and **religious** clusters (p=0.001) (Table 1).



**Table 1:**  
The median incubation period of COVID-19 by clusters

Cluster	n	Median	IQR	X <sup>2</sup> statistic* (df)	p
Corporate <sup>a</sup>	44	3.5	3.0 – 6.8		
Religious <sup>b</sup>	43	8.0	4.0 – 11.0	15.2(3)	0.002
Imported <sup>c</sup>	74	6.0	3.8 – 8.0		
Others <sup>d</sup>	58	5.0	3.8 – 8.0		

\*Kruskal Wallis test

Post Hoc tests: <sup>ab</sup>p = 0.001; <sup>ac</sup>p = 0.153; <sup>ad</sup>p = 0.478; <sup>bc</sup>p = 0.203; <sup>bd</sup>p = 0.100; <sup>cd</sup>p = 1.00

## DISCUSSION / CONCLUSION

- The median IP of COVID-19 of 5 days is within the range of IP estimated by the World Health Organization.
- A higher infecting dose as well as higher virulence of the strain could possibly lead to a shorter IP.
- Based on the longest median incubation period in our study (cluster religious), medical observation or quarantine period should be of a minimum of 8 days to halt the spread of disease.
- Therefore, our recommendation is to maintain current practice of quarantine of 14 days which will suffice to curb the spread of disease.

### Acknowledgements

The authors would like to thank the Director General of Health Malaysia in the support of publishing this poster. Our special thanks goes to the staff of the Petaling District Health Office.

### References

1. Brookmeyer, R. (2015). Incubation Period of Infectious Diseases. Wiley StatsRef: Statistics Reference Online, 1–8
2. Ministry of Health Malaysia. (2020a). Guidelines on COVID-19 Management in Malaysia No. 5/2020.
3. Petaling District Health Office. (2020). Laporan Harian Wabak COVID-19, Daerah Petaling, 22 April 2020.