Perspective

Lunar New Year and Eid al Fitr: the circle of COVID-19

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A R T I C L E   I N F O

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A B S T R A C T

Lunar New Year and Eid al-Fitr are national holidays, and mass movement of people is seen. Lunar New Year 2020 potentiated the spread of coronavirus disease 2019 (COVID-19), while Eid al-Fitr 2022 was a test for federal management of COVID-19 and the success of the Indonesian vaccination campaign. Analysis of new confirmed cases, hospitalizations and the number of elective surgery cancellations due to positive polymerase chain reaction screening in the pre-operative period provides a snapshot of herd immunity.

Introduction

At its core, the coronavirus disease 2019 (COVID-19) pandemic is a story of mass human movement. Modern transportation and mass social gatherings are undoubtedly vital variables that control the rise and fall of this new disease caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). As the virus spread, multiple modalities were used in attempts to control the disease, mainly testing and vaccination. Both polymerase chain reaction (PCR) testing and vaccination have a strong influence in the perioperative period; as such, this study investigated the timing of mass gatherings and the relationship with screening data and vaccination in order to describe the pattern of disease in the community.

SARS-CoV-2 emerged in Wuhan, Hubei province, China in December 2019 (Chen et al., 2020). Huanan seafood market was identified as the site of emergence, and several vendors and visitors were admitted to hospital with severe respiratory disease. The market was closed on 3rd January 2020, and this closure marked the beginning of the pandemic (Chen et al., 2020; Wu and McGoogan, 2020).

The rise of COVID-19 coincided with the Lunar New Year holiday in China, where many people traditionally travel across China or abroad. It was estimated that 5 million people left Wuhan, and almost 2 million travelled outside Hubei province for Lunar New Year in 2020. Upon learning of the emerging disease, the Chinese authorities imposed travel restrictions on 23rd January 2020, and prolonged Lunar New Year to 10th March 2020 in an attempt to contain the spread of disease (Chen et al., 2020; Wu and McGoogan, 2020).

Unfortunately, by that time, the disease had already spread within China and also globally. Close-contact gatherings became the model of transmission of COVID-19 throughout its evolution. This model of transmission differed from the secondary transmission of previous emerging influenza diseases, notably severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome, where transmission mainly occurred in the hospital setting (Wu and McGoogan, 2020). During the early weeks of January 2020, 1183 case clusters of familial households from 20 provinces outside of Hubei province were reported (MacIntyre, 2020).

The disease also widened its reach abroad, as the first case of COVID-19 outside China was reported in Thailand on 13th January 2020 (MacIntyre, 2020; World Health Organization, 2020). The patient was a 61-year-old Chinese woman living in Wuhan, who travelled by plane to Thailand on 8th January 2020 with a tour group of 16 people. She had a history of visiting the local market in Wuhan regularly before the onset of illness on 5th January 2020. Other early international transmissions were recorded in South Korea (4th February 2020), Italy (8th February 2020) and Iran (9th February 2020). In South Korea, six more cases were detected within 2 days of identification of the first case (MacIntyre, 2020; World Health Organization, 2020).

The World Health Organization (WHO) declared a global pandemic on 11th March 2020, with China reporting 80,000 cases by 25th February 2020 (Cucinotta and Vanelli, 2020; World Health Organization, 2020). Indonesia reported its first case on 6th March 2020, when a 31-year-old woman was infected by a Japanese citizen who was living in Malaysia and visited Indonesia on 14th February 2020 (Tosepu et al., 2020). By the end of May 2022, there had been 6,053,894 confirmed cases of COVID-19 with 156,565 deaths in Indonesia (World Health Organization, 2022).

The Indonesian government applied several protocols in the national management of COVID-19, such as mandatory closure of non-essential workplaces, institutions and gatherings, known as the
FIGURE 1. COMPARISON OF CONFIRMED CASES, HOSPITAL ADMISSION AND ELECTIVE SURGERY CANCELLATION DURING MUDIK 2022

This study supports the success of the vaccination campaign, consistent with reports on the relaxation of social distancing measurements and vaccination (Kim et al., 2022; Buonomo et al., 2022; Milne and Xie, 2020). Key success indicators of the vaccination campaign in Indonesia can be seen from February 2022 with the arrival of the Omicron variant of SARS-CoV-2. During this time, low numbers of deaths and hospital admissions, and a low number of cancellations of elective surgical procedures due to asymptomatic COVID-19-positive cases signalled the success of the vaccination campaign. The low prevalence of cases continued through early June 2022. As such, the observations suggest that Indonesia has achieved herd immunity to a certain extent, and Mudik was a test of its effectiveness.

An interesting note should be made that just as WHO announced a new variant of interest (Omicron BA.4 and BA.5) on 31st May 2020, there was an increase in the number of confirmed cases in the second week of June 2022 (European Centre for Disease Prevention and Control, 2022; Spiliotis et al., 2022; World Health Organization, 2022). It is presumed that, in the future, the driver of infection peaks would be the emergence of new variants of SARS-CoV-2. Lessons from the Delta and Omicron variants showed that new variants often emerge from areas with lower vaccination coverage. The authors urge international cooperation and understanding on vaccine distribution, especially in low-to-middle-income countries, and increased vaccine acceptance in developed countries where individuals are resistant to vaccination (European Centre for Disease Prevention and Control, 2022; McIntyre et al., 2022; Ye et al., 2022).

Another observation made in this study was regarding pre-operative PCR testing. Since pre-operative PCR testing uses resources and is costly, it begs the question of whether PCR is still necessary when infection levels are low and vaccination coverage is high. However, cessation of pre-operative PCR testing may mean that opportunities to learn about the pattern of disease are lost. The Chinese government still has a strict PCR testing policy on pre-operative screening, and daily travel and work requirements. Aiming for ‘zero cases’ is controversial as it places additional financial burden on the people (Song et al., 2022; Wang et al., 2022). Although the recommendations of the American Society of Anaesthesiologists and Anesthesia Patient Safety Foundation (2022) still mandate testing in the pre-operative period, studies have reported that, unlike SARS, patient-based transmission of SARS-CoV-2 is rare, and group or family cluster transmission is more prominent in SARS-CoV-2. Studies showed that use of personal protective equipment, hand washing and vaccination protect healthcare workers from COVID-19-related death and hospitalization, while reducing transmission from the patient delayed the peak of disease by 10 weeks, and 20% restriction delayed the peak by 2 weeks, although most studies were undertaken prior to vaccinations (Milne and Xie, 2020; Zhou et al., 2020).

Mudik and the aftermath

Mudik is an annual Indonesian homecoming tradition to celebrate Eid Al-Fitr, where millions of people migrate from one area to another. Mudik takes place after the holy fasting month of Ramadhan, and occurred on 1st May 2022. Similar to the Lunar New Year migration in China, Mudik is considered a high-risk event. The Indonesian government banned this traditional annual activity in 2020 and 2021 to stop the spread of SARS-CoV-2. The ban was lifted in 2022, and 6.3 million people used public transportation during Mudik and travelled around Indonesia (Tantri and Waluyo, 2021; ).

During Mudik, the majority of traffic travelled from Jakarta, the capital city, to cities on Java island. Contra-Mudik occurred 10 days later, on 10th May 2022, when people travelled back to Jakarta. During this period, the Indonesian government dismissed PCR testing as a requirement to use public transportation and international travel, and boosted the vaccination status of more than 60% of Indonesian citizens (Tantri and Waluyo, 2021; West Java Coronavirus Dashboard, 2022). The combination of high vaccination coverage, relaxation of social distancing rules, and the end of the infection peak for the Omicron variant resulted in a unique opportunity for study. To the authors’ knowledge, this is the first study to report this type of observation.

Confirmed cases and hospital admissions, from the Indonesian Ministry of Health, were paired with elective surgery cancellations gathered from the routine pre-operative PCR testing database (Figure 1). Our national referral hospital in Indonesia is located in the most densely populated province in the heart of Mudik, West Java. This hospital performs routine PCR testing for pre-operative patients, and can be used as a snapshot of unreported infections in the community (Giwangkancana and Anzhari, 2022).

During the 2 weeks after Mudik, which officially ended on 12th May 2022, there were no increases in confirmed cases, hospital admissions and elective surgery cancellations due to COVID-19. The low number of cases was consistent with studies which showed that a reduction in mobility of 20–60% within the city had a notable effect on controlling the spread of SARS-CoV-2, a strong (100%) social distancing protocol.
(Kim et al., 2023; Maltezou et al., 2022). Therefore, in the aftermath of Mudik, there are three questions:

- Should pre-operative PCR testing be stopped?
- Is it necessary to continue looking for variants of interest?
- How much should social distancing be relaxed?

It is important to study herd immunity at this time.

**Conclusion**

Relaxation of social distancing measures and allowing mass movement of people during a pandemic must be based on data-driven policy, proven effectiveness of disease containment, and achievement of herd immunity.

**CRediT authorship contribution statement**

Gezy Giwangkancana: Conceptualization, Methodology, Investigation, Writing – original draft. Erwin Pradiwan: Conceptualization, Writing – original draft. Indriasari: Resources, Data curation, Writing – review & editing. Santi Devi Handayani: Data curation.

**Conflict of interest statement**

None declared.

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**Ethical approval**

Institutional review board clearance was granted (No. LB.02.01/X.6.5/161/2020) as a sub-study of the surgical patient cohort with COVID-19 (Giwangkancana and Anzhari, 2022).

**References**

American Society of Anesthesiologists and Anesthesia Patient Safety Foundation. Joint statement on perioperative testing for the COVID-19 virus. ASA and APSF, 2022. Rochester, MI. Available at: https://www.asf.org/news-updates/asa-and-apsf-joint-statement-on-perioperative-testing-for-the-covid-19-virus (accessed 22 September 2022).

Azhar M, Azzahra HA. Government strategy in implementing the good governance during COVID-19 pandemic in Indonesia. Admin Law Govern J 2020;3:300–13.

Buonomo B, Della Marca R, Sharbayya SS. A behavioral change model to assess vaccination induced relaxation of social distancing during an epidemic. J Biol Syst 2022;30:1–25.

Chen S, Yang J, Yang W, Wang C, Bürgihauser T. COVID-19 control in China during mass population movements at New Year. Lancet 2020;395:764–6.

Cucinotta D, Vaneli M. WHO declares COVID-19 a pandemic. Acta Biomed 2020;91:157.

European Centre for Disease Prevention and Control. Epidemiological update: SARS-CoV-2 Omicron sub-lineages BA.4 and BA.5. Stockholm: ECDC; 2022 Available at: https://www.ecdc.europa.eu/en/news-events/epidemiological-update-sars-cov-2-omicron-sub-lineages-ba4-and-ba5 accessed 22 September 2022.

Giwangkancana G, Anzhari RA. Prevalence of surgery cancellation and challenges in restarting elective surgery in the pandemic: a cross-sectional study. Periop Care Operat Room Manag 2022;28.

Indonesian Ministry of Health. Covid-19 situation report. Jakarta: Indonesian Ministry of Health; 2022 Available at: https://covid19.go.id/situasi accessed June 2022.

Kim J, Jung J, Namgung S, Jung J, Kim SK, Lim YJ, et al. Effect of COVID-19 vaccination on transmission among healthcare workers in South Korea. Antimicrob Stewardship Healthcare Epidemiol 2022;2(Suppl. 1):175–6.

Kim K, Kim S, Lee D, Park CY. Impacts of social distancing policy and vaccination during the COVID-19 pandemic in the Republic of Korea. Journal of Economic Dynamics and Control. 2023;104642.

Macintyre CR. Global spread of COVID-19 and pandemic potential. Glob Biosecur 2020;1:

doi:10.31646/gbio.55.

Maltezou HC, Dounias G, Rapiarisda V, Ledda C. Vaccination policies for healthcare personnel in the COVID-19 era: current challenges and future perspectives. Vaccine 2022;11.

McIntyre PB, Aggarwal R, Jani I, Jawad J, Kochhar S, Macdonald N, et al. COVID-19 vaccine strategies must focus on severe disease and global equity. Lancet 2022;399:406–10.

Milne GJ, Xin S. The effectiveness of social distancing in mitigating COVID-19 spread: a modelling analysis. MedRxiv 2020. doi:10.1101/2020.03.20.20040055.

Song S, Zang S, Gong L, Xu C, Lin L, Francis MR, et al. Willingness and uptake of the COVID-19 testing and vaccination in urban China during the low-risk period: a cross-sectional study. BMC Public Health;22:556.

Spiliotis K, Kouwtsomarcs CR, Reppas AJ, Papaxenopoulos LA, Starke J, Hatzikiou H. Optimal vaccine roll-out strategies including social distancing for pandemics. iScience 2022;25.

Tantri AL, Wahuyo S. Polemic of mudik in Indonesia: how people deal with government regulation related to Covid-19. EJS Web of Conferences 2021;317:04004.

Yosepu R, Erfandy DS, Ahmad LO. The first confirmed cases of COVID-19 in Indonesian citizens. Public Health Indonesia 2020;6:76–1.

Wang Y, Sun K, Feng Z, Yi L, Wu Y, Liu H, et al. Assessing the feasibility of sustaining a “zero-COVID” policy in China in the era of highly transmissible variants. medRxiv 2022. doi:10.1101/2022.05.07.22274792.

West Java Coronavirus Dashboard. 2022. Available at: https://dashboard.jabarprov.go.id/id/dashboard-pikobar/trace/statistik (accessed June 2022).

World Health Organization. Novel coronavirus – Thailand (ex-China). Geneva: WHO; 2020 Available at: https://www.who.int/emergencies/disease-outbreak-news/item/2020-DON234 accessed June 2022.

World Health Organization. Indonesia coronavirus dashboard. Geneva: WHO; 2022 Available at https://covid19.who.int/region/seinaro/country/id accessed June 2022.

Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. JAMA 2020;323:1239–42.

Ye Y, Zhang Q, Wei X, Cao Z, Yuan HY, Zeng DD. Equitable access to COVID-19 vaccines makes a life-saving difference to all countries. Nat Hum Behav 2022;6:207–16.

Zhou Y, Xu R, Hu D, Yue Y, Li Q, Xia J. Effects of human mobility restrictions on the spread of COVID-19 in Shenzhen, China: a modelling study using mobile phone data. The Lancet Digital Health 2020;2:e417–24.