

## COVID-19 PREVENTION IN PUBLIC TRANSPORT: A QUALITATIVE STUDY

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### ABSTRACT

*Human mobility has the potential to act as a vector for the spread of infectious agents. Efforts to prevent COVID-19 in the transportation sector must be carried out correctly. This research aims to find out the description of COVID-19 prevention behavior on public transportation. This is descriptive research with a qualitative approach. The study was conducted in Jabodetabek. The variable in this study was the prevention of COVID-19 on public transportation. This study's informants are public transportation users selected by purposive sampling. Data were collected by conducting in-depth interviews, analyzed using the Content Analysis method, and presented in a narrative for interpretation. Atlas. ti was used to transcribe the results of in-depth interviews with informants. The findings indicate that not all modes of public transportation have the optimal level of COVID-19 prevention. Prevention of COVID-19 that is common on some public conveyance includes wearing a mask, vaccination status check, checking body temperature, hand washing facilities or hand sanitizers, and physical distancing rules. There are rules for the commuter line: do not talk while on the commuter line. Airplanes are required to have a negative PCR test. Masks and the social distancing scheme are carried out in Jaklingko and Busway (Transjakarta). COVID-19 prevention in microlets is still not optimal because keeping a distance is difficult because the reduction in passengers will affect the drivers' income. It is hoped that the public will comply with the behavior of preventing COVID-19 in public transportation, and the government and related agencies will provide facilities and carry out monitoring and evaluation of the prevention of COVID-19 in public transportation.*

**Keywords:** COVID-19, prevention, public transportation.

### ABSTRAK

Mobilitas manusia berpotensi menjadi vektor penyebaran agen infeksius. Upaya pencegahan COVID-19 pada sektor transportasi harus dilakukan dengan baik. Tujuan dari penelitian ini adalah untuk menganalisis gambaran perilaku pencegahan COVID-19 di kendaraan umum. Jenis penelitian ini adalah deskriptif dengan pendekatan kualitatif. Penelitian dilakukan di Jabodetabek. Variabel dalam penelitian ini adalah pencegahan COVID-19 di kendaraan umum. Informan dalam penelitian ini diambil secara *purposive*. Data dikumpulkan dengan wawancara mendalam dan dianalisis menggunakan metode analisis konten, serta disajikan secara naratif untuk diinterpretasi. Atlas.ti digunakan untuk mentranskripsikan hasil wawancara mendalam dengan informan. Hasil penelitian menunjukkan bahwa tidak semua moda transportasi umum memiliki tingkat pencegahan COVID-19 yang optimal. Pencegahan COVID-19 yang umum dilakukan di beberapa kendaraan umum antara lain penggunaan masker, pengecekan status vaksinasi, pengecekan suhu tubuh, penyediaan fasilitas cuci tangan atau hand sanitizer, dan aturan jaga jarak. Ada aturan lain untuk KRL yaitu dilarang bicara saat berada di KRL. Aturan khusus untuk penumpang pesawat yaitu harus memiliki tes PCR negatif. Penggunaan masker dan skema jaga jarak dilakukan di Jaklingko dan Busway (Transjakarta). Pencegahan COVID-19 di mikrolet atau angkot masih belum optimal, menjaga jarak sulit dilakukan karena pengurangan penumpang akan mempengaruhi pendapatan pengemudi. Diharapkan masyarakat mematuhi perilaku pencegahan COVID-19 di transportasi umum, serta pemerintah dan instansi terkait menyediakan sarana dan melakukan monitoring dan evaluasi pencegahan COVID-19 di transportasi umum.

**Kata kunci:** COVID-19, pencegahan, angkutan umum

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## **Introduction**

On March 2nd, 2020, Indonesia's first coronavirus disease 2019 (COVID-19) case was reported. The number of people infected with SARS-CoV-2 has increased exponentially since then.<sup>1</sup> COVID-19 can be transmitted through oral and nasal secretions in close contact with an infected person. These secretions include saliva, respiratory secretions, and droplet secretions.<sup>2</sup> As a result of COVID-19, travel patterns and behavior have changed dramatically. The density of confirmed cases is closely related to the level of transportation facilities.<sup>3</sup> Because many people are crowded into a confined space with limited ventilation, no access or control to identify potentially sick people, and numerous joint surfaces to touch, public transportation systems create a high-risk environment (ticket machines, handrails, door knobs).<sup>4</sup>

Several countries have reported numerous clusters of COVID-19 cases in public vehicles. SARS-CoV-2, recent findings revealed a strong and significant correlation between COVID-19 and train and airplane travel. On April 8th, for example, 25 passengers on a flight from Moscow to Beijing were diagnosed with COVID-19.<sup>5</sup> In February 2020, in Tianjin, China, three transport vehicle clusters were found (8 cases).<sup>6</sup> Yang et al. reported that 10 of the 325 passengers and crew members on a flight from Singapore to Hangzhou, China, were infected with COVID-19.<sup>7</sup> Pongpirul et al. declared a confirmed case of COVID-19 infection in a taxi in Thailand.<sup>8</sup>

In addition to the ability to transmit the virus, characteristics of the population and the mobility of humans as virus hosts directly influence the spread of infectious diseases.<sup>9</sup> The counties intersected by a railway, freeway, national highway, or airports had a significantly higher risk of COVID-19 presence than other counties.<sup>10</sup> Human mobility has the potential to act as a vector for the spread of infectious agents. As a result, restricting mobility is a common strategy for slowing the pandemic.<sup>11, 12</sup> To suppress the increasingly widespread of Corona Virus Disease 2019 (COVID-19), the Minister of Health has established large-scale social restrictions as stated in the Regulation of The Minister of Health of The Republic of Indonesia Number 9 of 2020 Concerning Guidelines For Large-Scale Social Restrictions in The Framework of Accelerate Handling of Corona Virus Disease 2019 (COVID-19).

Transportation is one of the industries in Indonesia that the pandemic COVID-19.<sup>13</sup> Mobility has impacted is a significant factor in life and plays an essential role in supporting daily human activities. Because Jabodetabek (Jakarta, Depok, Bogor, Tangerang, Bekasi) has the most people in Indonesia, it has a high transportation movement.<sup>14</sup> The mobility of DKI Jakarta was lower during the implementation of the Large-Scale Social Restrictions, which then affected the suppression of the number of daily positive cases in DKI Jakarta.<sup>15</sup>

Although mobility is limited, efforts to prevent COVID-19 in the transportation sector must be carried out correctly. This is because the transportation sector is one of the sectors that can be a place of COVID-19 transmission. According to a study of transportation service user behavior on the Merak-Bakauheni track, the awareness of wearing masks still needs to improve, and many people continue to use masks, which is incorrect.<sup>16</sup> The purpose of this study is to describe COVID-19 prevention in public transportation in Greater Jakarta (Jabodetabek) and people's attitudes toward COVID-19 prevention in mass transit.

## **Methods**

This research was descriptive research with a qualitative approach. The study was conducted in the Greater Jakarta (Jabodetabek) area in July 2021. The variable in this study was the prevention of COVID-19 on public transportation. This study's participants were taken by purposive sampling, where the criteria were living in Greater Jakarta, using public conveyance, and being willing to agree to ethical clearance. Five informants participated in this research. The research location was chosen based on public transport: commuter lines, microlets, Jaklingko, busways (Transjakarta), online motorcycles, online taxis, and airplanes.

Data were collected by conducting in-depth interviews with informants. The collected data is then analyzed using the Content Analysis method and presented in a narrative for interpretation. The findings was presented by comparing the results obtained with the theory in the literature review and the research results on similar topics conducted by other researchers. Atlas. ti v9 was used to analyze qualitative data. This software aids in the analysis of qualitative research content. Atlas.ti was used to transcribe the results of in-depth interviews with informants. The data is identified and categorized using the main code (public transportation, such as commuter lines, microlets, Jaklingko, busways (Transjakarta), online motorcycle taxis, online taxis, and airplanes) and its sub-categories (COVID-19 prevention, such as wearing a mask, physical distancing, temperature check, vaccination status check, washing hands or using hand sanitizer, forbidden to speak, PCR test).

This study has ethical approval from the Health Research Ethics Commission of the Health Polytechnic of the Ministry of Health of Malang with registration number Reg.No.: 071/KEPK-POLKESMA/2021.

## **Results**

A total of five informants were asked about how to prevent the transmission of COVID-19 on public transportation. The following informants use public transportation services such as commuter lines, microlets, Jaklingko, busways (Transjakarta), motorcycles, taxis, and airplanes. Informants aged 26 to 45 years old who live in Jabodetabek.

**Table 1. COVID-19 Prevention Behaviors in Public Transportation**

COVID-19 Prevention Behaviors	Public Transportation						
	Airplane	Commuter Line	Busway (Transjakarta)	Jaklingko	Microlet (Angkot)	Online taxi	Online motorcycle taxi
Wearing a mask	√	√	√	√	√	√	√
Physical distancing	√	√	√	√			
Use hand sanitizer	√	√	√	√		√	
Washing hands	√	√	√				
Temperature check	√	√	√				
Vaccination status check	√	√	√				
Forbidden to speak		√					
PCR test	√						

According to the informants, preventing COVID-19 on the commuter line was ideal. These include wearing a mask, being vaccinated, checking body temperature, providing hand washing facilities or hand sanitizers, social distancing rules, and not speaking to prevent transmission through droplets.

*“I use the commuter line. Passengers are advised to wash their hands or use hand sanitizer before entering the gate. Since the COVID-19 pandemic, temperature checks are also carried out, and passengers are not allowed to talk in person or make phone calls. Masks are required to wear by a passenger. There are several ways to maintain distance. For seated passengers, a sign is given indicating which seats can be occupied and which are not. But, when rush hours, social distancing tends to be neglected, especially for passengers who are standing. At a time when COVID-19 cases were high, the commuter line also limited the number of passengers. So if the number of passengers on the platform is already large, the gate will be temporarily closed. In addition, KCI also conducts disinfection inside the train before it is operated.” (NA, 30 years).*

*“I use the commuter line and jaklingko. Prevention of COVID-19 at the station, such as keeping a distance, for example, by providing a sign to stand when queuing at the counter. What is usually not spaced is now spaced for queuing. Then also, keep your distance from the train. Passengers who are usually in one row of seats are filled with about eight people. That’s a maximum of only five people. Priority seats, which can usually be filled in one row of three people, can only be filled by two people. That’s to sit side by side. For passengers standing alternately, there is usually a sign as well. But when it’s busy, standing passengers usually pay less attention to social distancing. In the carriage, we are also forbidden to talk. Apart from*

*social distancing, passengers are required to wear masks. There is also a hand washing station or hand sanitizer at the station. It can be said that the commuter line has good prevention, only a lack of keeping distance during peak hours.” (RC, 26 years)*

COVID-19 prevention in microlets is lacking due to the difficulty in maintaining distance. The only way to prevent this is for drivers and passengers to wear masks. Regarding information from the following sources:

*“Prevention is still very lacking for the use of transportation, such as microlets. Passengers and drivers do wear masks, but sometimes there are passengers or drivers who use makeshift masks or masks that are not tightly closed. They also ignore social distancing for passengers. Maybe this is also a dilemma because if social distancing is enforced, of course, passengers will not be able to fit into the maximum capacity, so it will have an impact on the driver’s income.” (NA, 30 years)*

COVID-19 prevention for Jaklingko is better than microlets. Because they are required to wear masks, social distancing is also carried out by limiting the number of passengers. Some vehicles also provide hand sanitizer.

*“There are several Jaklingko vehicles that provide hand sanitizer, but there are also those that do not. Maybe they are running out. In addition, passengers and drivers are required to wear masks. Keeping the distance is also done, usually a long seat that seats six people only filled by four people. The seats are short and can usually be filled by four people, but only two people.” (RC, 26 years)*

Preventing COVID-19 on the busway is preferable to avoiding it in minibuses. At the bus stop, there are hand washing stations or hand sanitizers. There is a temperature check. Both passengers and drivers wear masks. Aside from that, social distancing occurs on the bus.

*“I use the busway every day for mobility. The prevention of COVID-19 on the busway is orderly. Passengers and drivers are required to wear masks. Temperature checks are also tested on passengers. In addition, the number of passengers is limited to a maximum of 30 people. Some seats are marked with a cross so that passengers can keep their distance. There were still passengers standing, but only a few. There is also a hand washing station or hand sanitizer at the bus stop.” (CP, 45 years)*

Prevention taken to prevent the transmission of COVID-19 when using online motorcycle taxis is to use masks for both riders and passengers. Sometimes some passengers bring their

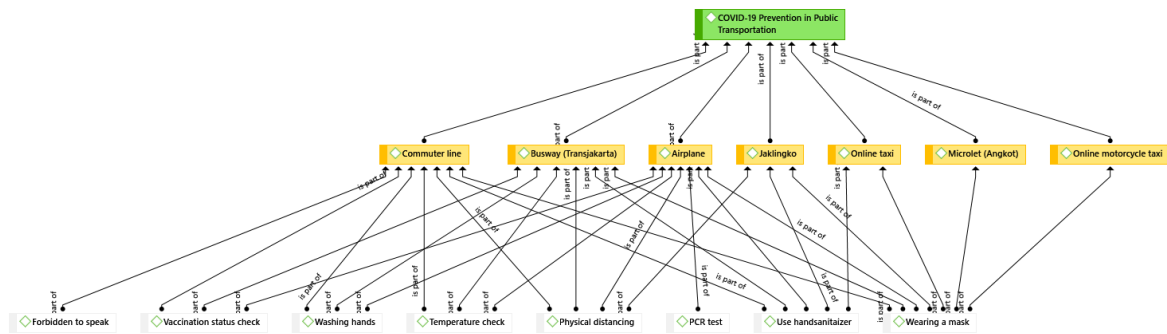
helmets. While the prevention of COVID-19 for online taxis is using masks, some online taxis also provide hand sanitizer.

*“I use online motorcycle taxis or online taxis. It is indeed more expensive than other public transportation, but I feel more comfortable using this than other public transportation. In preventing online motorcycle taxis at the beginning of the pandemic, passengers or drivers are required to wear masks, and in between, riders and passengers are given a barrier. However, not all online motorcycle taxis use it. Just in case, I also brought my helmet to avoid transmission from previous passengers.” (MB, 26 years)*

*“For online taxis, some taxis are equipped with a barrier between the driver and passenger seats, but not all taxis have a mica or plastic barrier. Sometimes, the driver also provides hand sanitizer. Both passengers and drivers continue to wear masks in online taxis.” (MB, 26 years)*

COVID-19 prevention on an airplane is excellent and organized. Passengers must show a negative PCR test result, check the vaccine status, provide a hand washing area or hand sanitizer, and check the temperature. They must also wear masks, and there is a social distancing strategy in the waiting room and on the plane.

*“For the prevention of COVID-19 on the airplane, the first requirement is to have a PCR with negative results. Before entering the airport, we check the temperature first. In addition, at the airport, hand washing stations or hand sanitizers are provided at various locations, and we must keep our distance. In the waiting room, the chairs are marked which can be occupied. For the economy class, which usually has six seats in one row (3-3), was only filled with four (2-2), so the middle seat was vacated. During the COVID-19 pandemic, food was given in the form of snacks to take home. All passengers are required to wear masks. If I’m not mistaken, there are provisions for the airplane that must have HEPA filters, and the aircraft must also be disinfected. When the passenger gets off, it is also adjusted to the seat number, so if you haven’t been called, you still sit in the seat. That is to prevent the accumulation of passengers when getting off the plane. In my opinion, the prevention of COVID-19 at airports and on planes is good and organized.” (AA, 33 years)*



**Figure 1. Results of Qualitative Analysis with Atlas.ti**

## Discussion

In order to reduce the spread of COVID-19, Indonesia implemented large-scale social restrictions.<sup>17</sup> The form of large-scale social restriction implementation that applies in several areas of Indonesia includes: school and workplace holidays; restrictions on religious activities; limitations on activities in public places or facilities; restrictions on social and cultural activities; regulations on defense and security activities; as well as restrictions on modes of transportation.<sup>18</sup> Even though mobility is limited, given that mobility is positively correlated with the transmission of COVID-19,<sup>12</sup> efforts to prevent COVID-19 need to be made because public transportation is one of the potential loci of the spread of COVID-19.

Related to controlling the spread of COVID-19 in the government transportation sector through the Minister of Transportation, Regulation of the Minister of Transportation No. PM 18 of 2020 concerning Transportation Control for the Prevention of the Spread of Corona Virus Disease (Ministerial Regulation No. 28 of 2020). Passengers' obligations are to wear masks, prepare medical equipment as required, obey and maintain physical distance, comply with procedures directed by the officer, and prioritize self-registration online (online check-in) for passenger transportation using the registration system online (online check-in). Transportation infrastructure operators are obliged to ensure the implementation of health protocols in the form of routine sterilization by spraying disinfectant and maintaining physical distance; preparing a hand washing place or hand sanitizer) at the entrance to the infrastructure transportation; ensuring all officers are in good health and wearing personal health equipment in the form of masks and gloves for health workers; carrying out body temperature checks for passengers.

According to Circular COVID-19 Task Force No. 24 of 2022, general health protocols for domestic travelers include: wearing a three-ply cloth mask or a medical mask that covers the nose, mouth, and chin; changing masks regularly every four hours and disposing of mask waste the designated place; washing hands periodically using water and soap or hand sanitizer, especially after touching objects that have been touched by other people; maintaining a minimum distance of 1.5 meters from others and avoiding crowds; and not having one-way or two-way communication

by telephone or in-person throughout the trip using public land, rail, sea, river, lake, ferry, and air transport.<sup>19</sup>

Health protocols in Indonesian public transportation are similar to those in Singapore, including wearing masks at all times on public transport, avoiding talking to one another or on mobile phones to prevent the spread of droplets, washing or sanitizing hands after touching joint surfaces such as handrails and grab poles, minimize taking public transport if sick.<sup>20</sup> According to Chinese experience, in order to ensure safety and reduce the risk of infection, passengers must be in good health when traveling. They should carry masks and other personal protective equipment. Keep hand sanitizer on hand if possible. Masks should be worn throughout the journey in congested areas such as airports and public vehicles. Passengers should avoid directly touching door handles, elevator buttons, or other public facilities. They should wash their hands or rub them with hand sanitizer as soon as they hold them. Personal hygiene should be observed, and fingers should not be used to contact the mouth, eyes, or nose. Coughing etiquette should be learned and practiced. Stairs or escalators should be used, and a distance of more than 100 meters should be avoided.<sup>21</sup>

In the Netherlands, an initiative was set up to identify the walking possibilities in Amsterdam where social distancing can be secured. Social Distancing Dashboard offers city maps showing whether the 1.5-meter social distance rule can be respected when walking in public spaces. This is detailed for both neighborhood and street levels. This dashboard aims to raise awareness among people about the constraints of keeping a social distance in public spaces and contribute to the decision-making for COVID-19-related interventions in urban planning.<sup>22</sup> Reflecting on what was done in the Netherlands, something similar can be done in Indonesia, where transportation providers provide real-time data about passenger density and transportation alternatives that can be used if passenger density is high.

The results of this study indicate that every mode of transportation prevents COVID-19, even though for some modes of transportation, the implementation of COVID-19 prevention has obstacles. The most challenging barrier to implementing health protocols in public conveyance is keeping a minimum distance of 1.5 meters from others and avoiding crowds. This is due to the limited public transportation space and many passengers, especially during rush hour.

Prevention of COVID-19 that has been carried out on the commuter line requires passengers to wear masks, check temperature and vaccination status, maintain distance, and not have one-way or two-way communication. In addition, handwashing facilities are provided before the entrance, and hand sanitizers are supplied at various locations. The results of this study follow the analysis of similar research, which states that additional sink facilities other than those in the toilet are necessary to take advantage of commuter line users' need to wash their hands before and after using the commuter line. In addition, hand sanitizer facilities at the station and those brought by



escort officers on the train are also available.<sup>23</sup> In the current COVID-19 situation, Indonesian commuter lines have imposed restrictions, or what is commonly referred to as social distancing, on every series of Indonesian commuter lines, with a distance of one meter on each seat of the Indonesian commuter train.<sup>23</sup> However, this has problems because social distancing is challenging to implement when leaving and returning from work, which is a busy time for passengers. The Commuter Line policy of prohibiting passengers from talking directly or through the phone while on the commuter line is good. This policy may reduce the risk of COVID-19 transmission because COVID-19 can be transmitted when someone sneezes, coughs, or speaks, releasing droplets or splashes of saliva containing the virus.<sup>24</sup>

Among microlets, Jaklingko and busway (Transjakarta), prevention of COVID-19 in microlets is the least. Prevention of COVID-19 in Jaklingko includes using masks, social distancing, and hand sanitizer. This is in line with other research on Jaklingko user satisfaction, which states that one of the elements that satisfy passengers is the excellent condition of the fleet and having facilities that support services well during the COVID-19 pandemic, such as hand sanitizer.<sup>25</sup> Meanwhile, prevention of COVID-19 on the bus is more complex because, apart from those preventive efforts, temperature and vaccine status checks and handwashing sinks are provided at the bus stop. Meanwhile, preventing COVID-19 in microlets is limited to wearing masks because social distancing is difficult. This is because passenger restrictions will directly impact the income of microbus drivers. The findings related to social distancing or passenger restrictions on microlets are in line with a similar study in Bandung City, where it was found that there were no restrictions on the number of passengers, no passenger restriction stickers, and no barriers between passenger seats.<sup>26</sup>

The prevention of COVID-19 in online motorcycles and online taxis is the use of masks and the presence of a barrier between drivers and passengers. Some online taxis also provide hand sanitizer in their cars. These findings align with similar research, which states that the spread of COVID-19 transmission among Gojek drivers can be prevented by implementing clean and healthy living behaviors. In addition, Gojek drivers take preventive measures against COVID-19 while working, such as wearing masks, keeping passenger helmets clean, and washing their hands after serving customers.<sup>27</sup>

Prevention of COVID-19 on airplanes is: passengers must show a negative PCR test result, check body temperature and vaccine status, and be provided with a hand washing station or hand sanitizer. They must also wear masks and social distancing strategies in the waiting room and on the plane. In addition, flight crews are also required to wear masks, face shields, and gloves. Since the COVID-19 pandemic, food has been served as take-home snacks. There are provisions for an airplane that must have HEPA filters. HEPA filters used in commercial aircraft have a particle removal efficiency of 99.97% at 0.3 microns. This filter can remove dust, steam, bacteria, and

mold. HEPA filters also capture virus particles because viruses usually spread through droplet nuclei.<sup>28</sup> At the time of the COVID-19 outbreak in Indonesia, the Polymerase Chain Reaction (PCR) test was required for anyone traveling long distances, and even more so for airline flights. This is by Circular Letter Number SE 45, the Year 2021, About Hints Conducting Insider Trips Country By Air Transportation During the COVID-19 pandemic contained in Number 5 letter (c), where the candidate passengers must fulfill the health requirements before travel, a prospective passenger is required to show vaccination cards and certificates The sample is collected within a maximum of 2x24 hours before departure.<sup>29, 30</sup>

The study's limitation is that it only captures COVID-19 prevention behavior on public transportation for a specific time. With the changing dynamics of COVID-19, there has been a slew of adjustments to the health protocol policy on mass transit. Furthermore, this study focuses on COVID-19 prevention behaviors in passengers. Further research could look at COVID-19 prevention programs in public conveyance from the viewpoint of transportation providers. The recommendation for passengers is to comply with health protocols in public transport as stated in Regulation of the Minister of Transportation No. PM 18 of 2020 concerning Transportation Control for the Prevention of the Spread of Corona Virus Disease and its addendum regulations. Transportation providers or the government can develop real-time applications to see passenger density in public transportation and provide alternative transportation if passenger density is high.

## **Conclusion**

This qualitative study investigates COVID-19 prevention on public transportation. The findings indicate that not all modes of public transport have the optimal level of COVID-19 prevention. Passengers on airplanes, commuter lines, and busways (Transjakarta) have more COVID-19 prevention behaviors than passengers on Jaklingko, microlet (angkot), online, and motorcycle taxis. This is due to more comprehensive COVID-19 prevention facilities at airports, train stations, and bus stops, such as handwashing sinks. Furthermore, because minibuses and some online motor taxis do not provide hand sanitizer, each passenger is responsible for carrying and using hand sanitizer. Physical distancing is challenging to implement on microlet (angkot) because reducing passengers from the maximum capacity decrease the driver's income. The government and related parties, such as transportation providers, are expected to provide means of preventing Covid-19, for example, by providing hand sanitiser, or hand washing sinks. Monitoring and evaluating related to preventing COVID-19 in public transportation must be done routinely. The public or users of public transportation are expected to always comply with COVID-19 prevention behavior by applicable regulations.

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## Conflict of Interest

The authors declare that they have no conflict of interest.

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