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Concept of Primary Care Clinic Facilities and Management in the New Era of Covid-19

Trevino Aristarkus Pakasi¹, Dhanasari Vidawati Trisna¹, Levina Stephanie Pakasi³

¹ Department of Community Medicine, Faculty of Medicine, University of Indonesia

² Department of Community Medicine, Faculty of Medicine, University of Indonesia

³ Faculty of Travel Medicine, Royal College of Physicians and Surgeons of Glasgow, United Kingdom

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Coresponding Author

Trevino A. Pakasi: Divisi Kedokteran Keluarga Departemen IKK FKUI, Jl. Pegangsaan Timur no. 16, Jakarta Pusat 10320

E-mail: pakasitrevino@gmail.com

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INTRODUCTON

The Covid-19 pandemic that started at the beginning of January 2020, spreading gradually from China throughout the world, and is still ongoing to date^{1,2}. The pandemic creates anxiety apart from the spreading very rapidly, but also because of its impact on various aspects³. There is no other cause that has accelerated the spread, except the course of human migration itself^{4,5}. Many plans to control the spreading including lockdown, was not working well to achieve the goals^{6,7}. Less compliance to the regulation because of the tradition of 'pulang kampung', as well as the economic drive. The tradition is strong enough that even a regulation from the government of Jakarta to control the returning people could not prevent they of going back to Jakarta⁸. Again, the moving people would increase probability of Covid-19 transmission, both sides in the destination and back to Jakarta. It is actually a warning for all health facilities to treat all visitors to have any contact to Covid-19. This was the aim of this concept paper, as to review and propose an idea of manging a safe clinic for both patients and staffs.

THE EPIDEMIOLOGY OF COVID-19

As a member of coronavirus family, the SARS-CoV2 is quite a special infectious diseases, because of the ability to spread an mimicking so many symptoms ranging from mild to very severe illness, but also asymptomatic patients.

The infection may occur in the respiratory tract as well as in the digestive system. There were also cases of positive swab-PCR test, but developed no symptoms. The rest of the disease are classified as mild, moderate, and severe Covid-19⁹. Uptill September 2020, there are more then 200,000 confirmed cases, followed by more then 8000 cases

of fatality¹⁰. The impact of Covid-19 was huge compared to the prior corona pandemic, SARS and MERS-CoV¹¹ in terms of the number of infected people and the mortality¹². The susceptible population includes medical doctors and health personnel.

It is important to note that there were three modes of transmission now, namely close contact, airborne and contaminated surface. Previously, the WHO only stated the use of personal protective equipment to prevent close contact and contaminated surface. But, now the transmission through aerosol is also important¹³⁻¹⁵. The smaller size of aerosol compares to droplet, allows aerosol to fly and spread farther than droplets^{9,16,17}.

ROLE OF AIR QUALITY TO TRANSMIT THE VIRUS

Setti *et al* from Italia reported the existing of SARS-CoV2 RNA particles in air. He did the study in Bergamo, North Italy by collecting air samples. Worthy to note that North Italy was one of the high impact area because of the Covid-19¹⁸. We have hypothesized the possibility that SARS-CoV-2 virus could be present on particulate matter (PM Similar confirmation form Germany (Ogen, 2020) that found the association of NO₂ high mortality of Covid-19. Two studies in Italy confirmed the same findings that air pollution was associated with high fatality rate of Covid-19^{19,20}. Wu *et al* in America reported that particles of 2.5 micron (PM 2.5) that increased 1 ug/m³ air increase the risk of fatality up to 15%²¹.

As a reflection to the situation in Indonesia, we could not deny that the air pollution in many big cities is very high. The PM 2.5 is used as an indicator of healthy air

quality because the particles may enter lung directly into the alveoli. Thus, the possibility of a virus in aerosol (<5 micron in size) to enter the respiratory system and reaches the alveoli, will be much higher in a polluted environment.

THE ROLE OF INDOOR AIR QUALITY TO AFFECT HEALTH PERSONNEL IN CLINIC AND HOSPITALS

The outdoor air pollution would affect the indoor air quality. In other way, due to the air pollution, opening window for ventilation is not recommended in the context of preventing Covid-19. Thus, there must be other way to consider the indoor air quality inside the clinic to ensure safety for the patients and the staffs of the clinic.

NEW CONCEPT CLINIC IN NEW-NORMAL ERA FOR HEALTH PERSONNEL AND PATIENT SAFETY

The occupational safety and health for a clinic developed from the HIV pandemic and renewed after the Ebola, that was mainly based on the blood-borne diseases^{22,24}. The fact that Covid-19 is an airborne transmission, the environmental control is more difficult. A clinic should make innovation to prevent airborne transmission from staffs to the other staffs, staffs to patients, patients to patients and patients to staffs^{25,26}.

1. Online service: the online service might be used for registration, triage, medical history taking, and education continue to the follow up. This service is also applied with the national health insurance (Jaminan Kesehatan Nasional), through mobile application.
2. Offline services, i.e. physical examination, laboratory, and other examination could be delivered upon appointment. In that case, there would be shorter time to wait for the service. Results of the laboratory examination could be delivered online to the doctor, and continuing the consultation through chatting or video conference.
3. Medication could be delivered through an online courier service. There are applications to be used for writing legal prescription, followed by digital payment and delivery directly. In the low resources area, at least a doctor could prescribe and send it to a pharmacy using the free public online social media. After the pharmacy receives the prescription, they could prepare the medication. Patient would then go to the pharmacy only to pick up the medication. Thus, it would short the visiting time to the pharmacy and reduce the close contact between visitors in the waiting room.
4. Room arrangement: consider the capacity of the room to ensure physical distancing, zonation of the room to consider high risk and low risk to Covid-19, as well as to establish a designated room for examining patients with respiratory problems.
5. The use of air-barrier
6. The use of ultraviolet is recommended as terminal disinfection, thus must be used after a service had been done²⁷.
7. The use of HEPA filter is recommended to improve indoor air quality. To be detailed engineer in US recommended the filter that could reduce particle less than 0.3 mikron^{28,29}.

8. Routine disinfection
9. The use of personal protective equipment as recommended by the Indonesian Medical Association, which is completion of the regulation from the Indonesian government³⁰. There are three levels and is meant to be used in relation with the clients.
10. Quality assurance program in the form of regulation, implementation, monitoring and evaluation.

CONCLUSION

The Covid-19 is the biggest pandemic as written in the history of human mind because the magnitude of the prevalence and affected millions of people with the impact on any other aspect in a community. Though the high impact and low fatality, the pattern was not clear enough how it would affect the susceptible population. Therefore, it is important for medical doctors to prevent the transmission using many modalities, through management of practice, using online service, the use of PPE, controlling the indoor air quality.

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For your note, there are a lot of studies in 2020 related with Covid-19. The disease and its pathogenesis are in ongoing studies. This writing is a concept paper and not a systematic review, which its primary concern is to prevent medical doctors from getting the infection.

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