

International Globalization and Spreading of Novel Coronavirus 2019 Infection: How Far and Fast? A Medical Logistics Assessment

Dear Editor,

Novel coronavirus 2019 infection, officially known as COVID-19, is a new emerging disease first reported from China.^[1] It is caused by a new virus, namely, SARS-CoV-2. Till now, the identity of the first patient with the disease or patient zero is still unknown but it is believed to be one from China. Understanding patient zero is difficult but useful for an illustration of geographical spread of the disease. From China, coronavirus infection has spread to several countries, starting from Thailand, and has become an important public health concern globally.^[2] The migration of the disease by international communication has become an important consideration. After importation of the disease, it can further spread internally in the destination country^[3] and there is also a possibility that the disease can further spread to the other countries.^[4] The disease trail is complex and this is linked to the chance that the worldwide pandemic can occur. The medical logistics assessment is a useful tool to track the disease transfer trails. Based on the logistics assessment, the information on disease migration pattern (both time and place dimensions) can be better understood.

Here, the authors perform a medical logistics analysis to track the international trails of the disease. The basic online tool, namely, DistanceFromTo (<https://www.distancefromto.net/>), is used for computational analysis. Until February 25, 2020, several countries around the world including China, Japan, Singapore, Vietnam, Thailand, USA, France, United Kingdom, South Korea, Malaysia, Russia, Australia, Germany, UAE, India, Italy, Canada, the Philippines, Spain, Finland, Cambodia, Israel, Iran, Kuwait, Oman, Bahrain, Egypt, Iraq, Lebanon, Afghanistan, Sweden, Belgium, Sri Lanka, and Nepal have patients related to this disease. Focusing on the disease transfer trails, there are 24 international disease transfer paths. In the present study, the authors exclude the paths that are the non-first-step continuous transfer and transfer via international marine route. Based on the analysis, the average travel distance of international transfer is $5245.76 + 2734.90$ km and the average required travel time of international transfer is $7.37 + 3.73$ h.

Based on these data, the disease has a high possibility for international transfer worldwide. The super-spreading of the disease due to globalization can be expected.

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Conflicts of interest

There are no conflicts of interest.

Won Sriwijitalai¹, Viroj Wiwanitkit^{2,3}

¹Private Academic Consultant Unit, Bangkok, Thailand, ²Dr DY Patil University, Pune, Maharashtra, India, ³Hainan Medical University, Haikou, China

Address for correspondence:

Dr. Won Sriwijitalai,
Private Academic Consultant Unit, Bangkok, Thailand.
E-mail: wonsriwi@gmail.com

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