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Japan builds mathematical simulator to guide COVID-19 isolation policies

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Number of isolation days can be reduced if PCR tests are used

In a new study, a multi-national effort that included researchers at the Institute for Advanced Study of Biology (ASHBi), Kyoto University, Japan, uses a mathematical simulator of the SARS-COV-2 dynamics to demonstrate that the number of isolation days can be reduced for many patients if PCR tests are used.

Dr. Shingo Iwami, an Associate Investigator at ASHBi and author of the study, explains that countries would be wise to consider more personalized decisions to shorten the isolation period.

“Longer isolation periods surely prevent transmission, but also impose substantial burden on isolated patients,” he said. “We found that PCR tests can shorten the isolation period without increasing the risk of further infection.”

PCR tests provide a measure of the viral load in the patient, which is an indicator of infection risk.

However, he admits that PCR tests may not be feasible everywhere. Because the tests require health professionals, they are costly and must be conducted at designated locations. Thus, a system dependent on PCR tests is more likely to succeed if patients are isolated in dedicated facilities and will be much harder to implement if patients are isolated at home.