TIFR Science News

Sero-surveillance: Random Community Testing to Assess Prevalence of COVID-19 Infection in Mumbai

In a joint venture between Tata Institute of Fundamental Research (TIFR), Translational Health Science and Technology Institute (THSTI, Faridabad), University of Chicago, Duke University, ATE Chandra Foundation (Mumbai), Kasturba Hospital (Mumbai) and IDFC Institute (Mumbai), under the aegis of the NITI Aayog, a pilot project was launched on 29 June 2020 to understand the extent to which the population in Mumbai has already been exposed to COVID-19 infection and predict the future spread of the infection. In the initial stage of this project, 10,000 blood samples will be randomly collected from asymptomatic Mumbai residents in the age group above 12 years (both in slum and non-slum areas). The blood samples will be subjected to serological testing to check for possible Covid-19 infection/immunity. This will help the local authorities to formulate appropriate public health policies in the region.

Communities are selected on the basis of different levels of prevalence. In partnership with BMC, sero-survellience has begun in three wards of the city: F-North (Matunga), M-West (Chembur) and R-North (Dahisar). These wards have been selected on the basis of the number of cases they have reported so far: F-North is amongst the wards with the higher case load, M-West is closer to the average, and R-North represents a ward with a lower case load. There will also be a special survey of healthcare and frontline workers in these wards. The blood samples will be sent to Kasturba Molecular Diagnostics lab, Mumbai and THSTI, Faridabad for detecting Immunoglobulin G antibodies.

Teams of members from MOH and NGOs, with the help of local counsellors are visiting the selected households to collect the blood samples along with basic demographic information, contact history and comorbidities. The blood samples are being collected after obtaining voluntary consent from the participants.

Improved estimates of asymptomatic infections, and repeated measurements will help estimate the trajectory of the epidemic and its progress towards herd immunity. The results of this survey will be valuable in determining how future surveillance should be conducted in this and other locations in India. In further phases, the sample size will be increased and the study will be extended to other cities across India. Testing in communities of different density will also help in determining the risk in other similarly dense areas.

Dr. S. Juneja and Dr. U. Kolthur of TIFR, Mumbai along with Dr. G. Kang of THSTI, Faridabad have been involved in the design of the study and data analyses. Dr. Kang is also involved in the confirmatory ELISA and neutralization tests. Dr. J. Shastri (Kasturba Hospital, Mumbai) has been assisting in testing, interfacing with NGOs, field supervision and primary data handling. Dr. A. Malani (University of Chicago, IDFC Institute) and Dr. M. Mohanan (Duke University, IDFC Institute) are knowledge partners with a responsibility for study design and statistical coding. A MCGM representative from the Public Health Department is also a part of the team. Ms. G. N. Lobo is involved in community engagement via A.T.E Chandra Foundation. IDFC Institute is helping with project management team and routing funds for the study.

Science Contacts: Dr. Sandeep Juneja E-mail: juneja@tifr.res.in Tel.: 022 2278 2725
Dr. Ullas Kolthur-Seetharam E-mail: ullas@tifr.res.in Tel.: 022 2278 2721