

Letter to Editor

The need for continuous genomic surveillance for early diagnosis of novel virus infection

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Dear editor,

All viruses mutate as they spread and replicate in a population. DNA viruses like monkey pox viruses mutate slower than RNA viruses like COVID-19 and influenza. All minor changes and mutation do not cause disease but recent COVID-19 pandemic and Monkeypox epidemic currently affecting more than thirty thousand cases worldwide as of and causing epidemics demonstrate the need for Rapid diagnosis, continuous surveillance, and real time tracking of infectious disease. (1, 2) Despite the knowledge acquired from previous outbreaks, such as SARS (severe acute respiratory syndrome) epidemic in 2002-2003 and the influenza pandemic in in 2009 novel and mutated emerging and reemerging diseases tend to surprise and overwhelm the global health response. Global public health surveillance system has evolved to meet the changing needs yet we continue to underestimate our vulnerability to both emerging and re-emerging Viruses. In recent times there is a gap in the existing infectious disease surveillance system especially when a novel virus which extends to a large geographical area. (3)

Genomic surveillance is a consistent accumulation of genomic sequences to identify the variant of the infection. Effective surveillance does not require all

samples to be sequenced, collecting enough samples from a representative population helps in identifying new variants and monitoring trends of the disease. Uses of genomic surveillance are monitoring change in genetic code, spread of variants, geographical isolation of variants. Collectively, helps to understand how different variants impact public health. (1-3)

Globally WHO's Global influenza surveillance and response system (GISRS) which was formed in 1952 was used for conducting surveillance and for alerting any novel Influenza and other respiratory In India during COVID-19 pandemic Indian SARS-CoV-2 Genomics Consortium (INSACOG) was built up to extend Entire Genome Sequencing of SARS-CoV-2 over the country, helping our understanding of how the infection spreads and evolves. Three strategy was used for genomic surveillance which focused on international travelers, sentinel surveillance in the community and event-based surveillance in special case scenarios. (4,5)

Among these three strategies followed by India during the pandemic. Genomic surveillance of international travelers should be made mandatory to all passengers both in and out of the country with proper reporting system, this prevents rapid spread of any novel infection, early diagnosis, and proper isolation of infected. Other two

strategies such as sentinel surveillance and event-based surveillance should be complimentary services with all these three strategies acting synergically to prevent raise of a new pandemic and to prevent rapid spread of any novel viral infection, testing international travelers both departure and arrival helps in tackling the problem more effectively. Quarantine and isolation facilities should be available near both air and sea ports. In international borders where road transport are common quarantine and isolation facilities should be properly setup to tackle this problem.

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