

COVID-19 Pandemic and Contact Tracing

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ABSTRACT

The coronavirus disease-2019 (COVID-19), which caused loss of massive lives and is still continuing to do so, was initially observed to cause severe illness and deaths in Wuhan (China) around December of 2019. The virus spread at a very fast pace all around the world extensively which made the World Health Organization (WHO) to declare a pandemic on March 11, 2020. Contact tracing is an effective method for containment of infectious like coronavirus disease. It is a method in which a lead case with confirmed COVID infection is enquired about the people he contacted during the period when he was possibly infective as the contacts were at a very high risk of obtaining infection from the lead case. The contacts are then traced and counseled about the risk of infection, quarantined, and tested if necessary as per the countries testing guidelines. Contact tracing is an efficacious method which can prevent the transmission of infection by identification of infected individuals, their isolation and care depending upon the severity of the disease (home isolation/hospitalization), and also investigation of the individuals which were exposed to them and isolating them for the required period if necessary so that virus transmission can be stopped. To conclude, contact tracing is definitely an important measure to control, prevention as well as the spread of coronavirus disease as respiratory droplets are the main form of spread of the virus. It is equally effective against all the strains of the virus irrespective of its virulence.

Keywords: Contact tracing, COVID-19 pandemic, World Health Organization.

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INTRODUCTION

The coronavirus disease-2019 (COVID-19), which caused loss of massive lives and is still continuing to do so, was initially observed to cause severe illness and deaths in Wuhan (China) around December 2019. The virus spreads at a very fast pace all around the world extensively which made the World Health Organization (WHO) to declare a pandemic on March 11, 2020.¹ A rapid rise in confirmed COVID-19 cases and their extension to almost all the countries was observed, and moreover, no particular treatment option like medications or vaccination was available, and thus, all the countries were forced to take nonpharmaceutical methods at an unequaled scale to manage the pandemic.

Further it is important to acknowledge the fact that the virus has high degree of genetic variation which leads to the introduction of new corona variants (delta, omicron) which are more infective, thus prior medicines or immunity by introduced vaccination will be less effective on the new variants.

CONTACT TRACING

Emergency protocol of different countries for the management of COVID-19 pandemic included quarantine of the symptomatic cases along with contact tracing and testing.² Efficacy of this method of contact tracing for the containment of new outbreaks depends on both the transmission rate of the infection with visible symptoms and even the transmission that occurred from the infection without such symptoms.

Contact tracing is a method in which a lead case with confirmed COVID infection is inquired about the people he contacted during the period when he was possibly infective (suffering or a carrier) as the contacts were at a very high risk of obtaining infection from the lead case. The contacts are then traced and counseled about the risk of infection, quarantined, and tested if necessary as per the countries testing guidelines.

Researchers have shown that coronavirus had a reproduction number of about 2–3 in the initial stages of the outbreak.³

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In Hong Kong the method of contact tracing was used in combination with isolation of cases, social distancing, usage of masks, and sanitization which reduced the reproduction number to nearly 1 in February and March 2022.⁴ South Korea opted for school closing and work from home along with testing and tracing which showed gradual decrease in the number of COVID cases.⁵

A report was published from the United Nations stating that reduction in COVID cases by 15% was achieved from manual contact tracing and isolation of family members as well as nonhousehold person who came in contact with the affected. The basic protocols like quarantine and sanitation were also followed throughout this time.⁶

CONTACT TRACING: NEED AND METHODS

Contact tracing is an efficacious method which can prevent the transmission of infection through identification of infected individuals, their isolation, and care depending upon the severity of the disease (home isolation/hospitalization) and also investigation of the individuals which were exposed to them and isolating the contacts for the required period so that virus transmission can be stopped. The progression of time and declination in number of COVID-19 cases had made several countries to gradually lift the lockdown measures. Although the emphasis on continuation of

social distancing method, sanitization, and masking is still done, but other methods for controlling the pandemic are also required as safety measures are not properly taken by the population. Contact tracing is the solution for decreasing the number affected individual especially in these times when the severity of disease is being taken lightly. Tracing done either via conventional method which is manual contact tracing or by the use of automated mobile application technologies can bring an end to this pandemic along with all the other measures.

Contact tracing is an important tool for containment of any infectious disease outbreak which spread via droplets or contact including Ebola virus, influenza virus, coronavirus, etc. The newly identified variants of COVID-19 are also showing the same positive result in their containment like the previous ones as the mode of infection is same, that is, contact. Even though the transmission ability of new strains is high, proper and prompt contact tracing along with isolation can show promising results in the control of spread. As contact tracing is a nonpharmaceutical method, there are no adverse effects and it prevents COVID-19 as well as other infectious diseases transmitted through contact.

Contact tracing is a method that identifies and monitors individuals that had been exposed to a person who has been infected with coronavirus and it involves the given steps:

- *Defining contacts:* A person who has been exposed to someone else who has had recent probable or confirmed SARS-CoV-2 infection.
- *Identifying contacts:* This is usually done through an interview with the person infected with SARS-CoV-2 to find out with whom they have been in contact with during the period of time described above.
- *Informing contacts:* Each identified contact should be contacted, also be encouraged to inform their own contacts. Each person who is identified as a contact will be educated about the goal of contact tracing, the process (collection of personal data and its protection), how to undergo quarantine and for how long, and who to contact with any concerns or questions. Information regarding the monitoring of symptoms throughout the quarantine period should be provided, and what steps are to be taken if contact returns a positive test or becomes unwell.
- *Managing and monitoring contacts:* Contacts should be encouraged and supported during the quarantine period. They should be assessed regularly regarding their physical and mental health.⁷

DIGITAL CONTACT TRACING

With advancement in technology, a new solution in the form of digital contact tracing was being put forward for the management of pre- or asymptomatic COVID infection. This system works by alerting the person if he is in radar of a COVID positive patient or is near an area where the risk of exposure is high. With this information the individual can take appropriate measures to prevent infection which further leads to breakage in the chain of transmission of the virus.

The Indian Government to control the infection launched a digital contact tracing mobile application known by the name Aarogya Setu. The app was launched for early collection, creating awareness, and for understanding of public health-related data pertaining to COVID-19. The installation of Aarogya Setu specially in situations where there is exposure of individual to public like airport, malls, restaurants, public transports, etc., was made

mandatory by the government, as such places are hot zones for infectivity.⁸ The design of app is such that the user along with the society is alerted through notification about their contact with a COVID-positive individual. This enables early recognition of disease nest and implementation of effective public health measures for further prevention of disease.⁹ The apps also show the vaccination status of the person and also any previous COVID infection if occurred.

Automated contact tracing potency to decrease transmission largely depends upon the population load that is the number of people who are active users of the app and the legitimacy of the data entered by them.¹⁰ Concerns were raised in various issues regarding the applications privacy concerns being the most important almost all such applications are based on systems that track the geographical location of the users. Public perceptions play a vital role in smooth running of these apps but negative scientific evidence, media coverage, and political agendas may shape communal opinion to either support or oppose the use of these apps.

New researches ought to be done on the apps to observe the effectiveness of the app on infection control and the transmission of the virus. The effectiveness of digital contact sharing should be compared with manual tracing systems to make sure that we use the better available resource. The attempt shall be made to design the apps in such a way that the ethical equity is maintained and the privacy concerns of the users are also resolved.

RECOMMENDATIONS

Social distancing, sanitization, and use of face mask should be definitely followed in order to avoid infection. Proper hand hygiene and disposal of contaminated waste should also be done. In case of contact with a COVID-positive patient or a potential carrier, the person is suggested to monitor their health for a minimum of 14 days from the last day of contact with potential carrier. In general, the quality protocol has been to isolate and monitor the potential contacts of the sickness and ensure that the forward transmission of the infection is interrupted.^{11–13}

In case of any symptoms or complications, the patient must visit doctor for consultation and take regular medication if prescribed by the doctor. A nutritious diet should be consumed, along with moderate exercise. Regular checkups should be done on physical, mental as well as emotional well-being of the individual.

CONCLUSION

Contact tracing is definitely an important measure to control, prevention as well as the spread of COVID-19 as respiratory droplets are the main form of spread of the virus. It is equally effective against all the strains of the virus irrespective of its virulence. Contact tracing by manual or digital method should be done and required protocol should be followed according to the state of person.

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