Contact Tracing in Turkey's Struggle with COVID-19: Its Scope, Components, and Stages

Türkiye'nin *COVID-19* Mücadelesinde Filyasyon: Kapsam, Bileşen ve Aşamaları

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The first case of COVID-19 and COVID-19-related death in Turkey were reported on March 11th and 17th, respectively. At the time of this letter, 2,147,578 cases and 19,878 deaths were reported (1). In combating the pandemic, countries have used different combinations of nonpharmaceutical interventions, such as contact tracing (CT), quarantine/isolation, school closures, and lockdowns. The experience since the beginning has shown that CT has played a strategic role in these efforts, particularly in Turkey (2–5), where more than 6000 CT teams have reached 99.6% of the cases and their contacts in less than 32 hours, with considerably reduced death rates (3).

The principles of CT in Turkey were described in detail in the 1930 Public Health Act. CT refers to the detection of cases and their contacts in the presymptomatic and infectious periods, their social isolation and remote clinical monitoring for symptoms, and supporting them during the isolation.

The rapid spread of the COVID-19 pandemic has mostly been due to the viral transmission from asymptomatic and presymptomatic individuals (6). Such transmission accounts for 75.9% of all transmissions, and contamination can be reduced by 80% if delays in CT and testing are eliminated and if an ideal level of CT and testing is achieved (7,8).

CT in Turkey has two types of basic components: (i) integrated digital tools and (ii) resources. The five digital tools used in CT are (i) the Public Health Management System (Tr. abbr. *HSYS*), (ii) the Contact Tracing and Isolation Monitoring System (*FİTAS*), (iii) the Laboratory Information Management System (*LBYS*), (iv) the Geospatial Intelligence System (*MİZ*), and (v) the Statistics and Causal Analysis System in Health (*SİNA*). The field teams employed in CT use the *FİTAS* mobile application; local CT coordinators use the *HSYS* and the *MİZ*; central managers use the *SİNA*. The resources used in CT can be classified into four categories: (i) manpower, (ii) transportation, (iii) medical consumables, and (iv) medicines.

The CT works as follows: When a person gives a specimen for testing, the process begins. From the moment the specimen is taken, the person has 4 hours to return home for quarantine until the result is released. Positive test results first appear in the *LBYS* and then are sent to the *HSYS*. Meanwhile, the tested person is informed with an SMS message. The case list created in the *HSYS* is assigned by local coordinators to field teams so that the teams will make a home visit to the persons on the list. The field team, two medical professionals with a chauffeured vehicle, sees the phone number and home address of an assigned case on the *FİTAS*, calls the person prior to the visit, and gets information about the other people whom the person has contacted in the last 48 hours. The people who have contacted the index case are added to the "contacts list" on the *FİTAS*. This list is transferred to the *HSYS*

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and, similarly, is assigned to field teams operating in the locations of the contacted persons. During the home visit at the door, the CT field team confirms that the infected person is at home, provides medication, takes a specimen from symptomatic household members, adds all household members to the contact monitoring list, sends an approval to the Social Security Institution (*SGK*) for income support during isolation, and then the 10-day isolation period begins. If the team observes that the family needs social support, the municipality also is informed. Afterward, the family physician calls the patient periodically. The addresses of cases and the real-time locations of CT teams are monitored on the *MİZ*. Thus, patients and their contacts are isolated quickly and potential chains of transmission are broken.

The average number of contacts per person increases with the increase in the mobility of individuals, resulting in an exponential increase in the CT burden in that population. The health system capacity, which is a critical threshold in flattening the epidemic curve, should be measured not only by the intensive care capacity, but also by the CT capacity.

It has been seen that countries that started CT promptly, including South Korea, Singapore, and Iceland, have been more successful in the management of the pandemic (9,10). Isolating patients and their contacts in the presymptomatic period is a proactive approach with strategic importance in breaking the chains of transmission (11). Compared to lockdowns and other general measures that are associated with heavy economic and social costs, precision applications such as CT can achieve similar results with much lower costs (12).

Successful CT has been central to the fight against the COVID-19 epidemic in Turkey. Cost–benefit analyses are needed to elucidate the true importance of CT. The amount of resources allocated to CT can determine the fate of the fight against the pandemic.

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