

Draft

**Best Practice Role of Information and Communication
Technology (ICT) during Pandemic:
A Case Study of Quarantine Tracking App used in Karnal,
Haryana**

Role of Information and Communication Technology (ICT) during Pandemic: A Case Study of Quarantine Tracking App used in Karnal, Haryana

Introduction

Now a days, in the information rich society, Information and Communication technologies play an important role in all walks of life. The adoption of technology has increased because of its potential effect on many aspects of economic and societal activities such as GDP growth, employment, productivity, poverty alleviation, quality of life, education, clean water and sanitation, clean energy, and healthcare. The technology has also played a critical role during the adverse situations like disaster, pandemic, etc. which lead to anxiety, sadness, fear, stress, etc. These negative emotions create physical and mental health problems.

With the spread of COVID-19 disease in almost all countries of the world, World Health Organisation (W.H.O) the international organisation of united Nation (UN), which deals with the health related issues, has declared this disease as pandemic. In order to prevent the spread of pandemic W.H.O has issued technical guidelines, travel advisory, advice to public for COVID-19, which are updated from time to time during pandemic period for member countries. The technical guidelines include critical preparedness, readiness and response actions for COVID-19; Country-level coordination, planning, and monitoring; Infection prevention and control / WASH; Early Investigation Protocols, Points of entry and mass gatherings; Humanitarian operations, camps and other fragile settings etc.[1].

The Ministry of Health and Family welfare, Government of India issues guidelines to be adopted by the different state governments of India based on the guidelines issued by W.H.O during this period.

Government of India has issued the guidelines to quarantine the contact people “A contact is defined as a healthy person that has been in such association with an infected person or a contaminated environment as to have exposed and is therefore at a higher risk of developing disease” for at least 14 days [2]. Quarantine is basically to save the family, care givers and neighbours. Free movement of Covid suspect or positive people is hazardous. Ill-effects of known cases of quarantine jumping are well known. There is a tendency among the people to either conceal initial signs of infection or a wrongly placed confidence of being beyond reach of Covid .

Once quarantined, it becomes a challenge for the agencies who are involved in the prevention of COVID-19 to monitor whether the quarantined persons adhere to the guidelines of quarantine process.

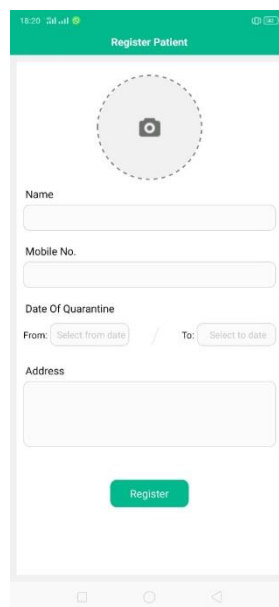
There are 1168.32 millions mobile connections in India with 643.64 million internet users through mobile phones at the end of July 2019[3]. The mobile phone can be used to track the position of the person. The use of mobile technology can be effectively used in tracking the position of quarantined person during pandemic.

District Administration, Karnal was facing the problem of enforcing home quarantine. One way of doing that was deploying police personnel outside the homes of suspected people; but that would not have been feasible. Therefore, technology was seen as a solution to enforce home quarantine that was considered economically as well as resource-wise feasible. Covid-19 Karnal Live Tracker is an Android app, developed by NIC to track the persons who are quarantined at home as suspect to Covid-19. The App uses GPS and Geo-referencing techniques to track the position.

The objective of this practice is to curtail the spread of severe acute respiratory syndrome Corona virus 2 (SARS-CoV-2) responsible for COVID-19 disease, which is spreading by human to human transmission; by enforcing that people who are suspected of being Corona positive remain at home at all times and not spread the disease.

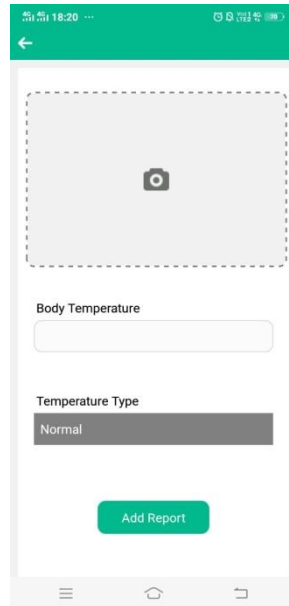
Implementation of the practice

During quarantine period, the App is installed on the mobile of patient. Once installed, the patient has to be registered on App filling basic details like Name, Mobile No, quarantine period and profile Photo.



The screenshot shows a mobile application interface titled "Register Patient". At the top, there is a green header bar with the title. Below the header, there is a circular icon with a camera symbol, indicating a profile photo upload. The form consists of several input fields: "Name", "Mobile No.", "Date Of Quarantine" (with "From:" and "To:" sub-fields), and "Address". At the bottom of the form, there is a green "Register" button. The background is white, and the text is in a standard sans-serif font.

Patient has to report on App by clicking his latest photo along with body temperature. Latitude and longitude are being captured automatically at backend of system which shows his current location. It is mandatory for him to report six times with a gap of two hours in a day starting from 10:00am to 10:00pm.



A Dashboard has been designed to monitor the reporting activity of the quarantined persons. The movement of the person can be tracked using Google Map.

In case, the patient skips two consecutive periods of reporting, it reflects on dashboard and the helpdesk operator will call that patient to submit the report and appropriate action will also be taken and will be sent to centralised quarantined facility at Sanik School Kunjpora.

App has the option for any kind of help like counselling required by quarantined person. The detail of help required is also compiled on Dashboard. Facility of pointing the quarantined patients on Google Map is also on progress.

Results of the Practice: Outputs and Outcomes

- It has helped the District administration to enforce home quarantine in an efficient manner.
- If the home-quarantined person skips two consecutive periods of reporting, it reflects on Dashboard and then they will be shifted to a quarantine ward.
- At the time of writing this paper 66 people are being tracked (as of 18.04.2020) to enforce home quarantine with the help of this app.

Lesson Learnt

- Optimum utilization of resources in a crisis situation.
- Use of technology and innovative ideas can bring better outcomes in administration.
- Lacunae – A person may venture out in the duration of 2 hours (periods in which profile photo has to be uploaded). This duration might be reduced after some time.

Conclusion:

Karnal Live Tracker App is a digital surveillance system that has been of a great help for district administration to strictly enforce home quarantine in its fight against Covid-19. It

has reduced the spread of Covid-19 in the district, to a considerable extent and has ensured that authorities remain aware of home quarantined people's health status and location. Similar App has been designed by different states like Karnataka, Tamil Nadu, Assam, Gujarat, Chhattisgarh. The practice is scalable, effective and efficient from resources requirement angle. The misuse of tracking people is against the right of freedom covered in article 19 to 22 of constitution of India.

Reference

- [1] <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance>
- [2] <https://www.mohfw.gov.in/pdf/Guidelinesforhomequarantine.pdf>
- [3] <https://dot.gov.in/sites/default/files/Telecom%20at%20a%20Glance-2019.pdf?download=1>