CMGGA
Chief Minister's
Good Governance Associates
for a progressive Haryana

TACKLING COVID IN HARYANA

BEST PRACTICES

A collaboration between Ashoka University and Government of Haryana

ASHOKA UNIVERSITY

CMGGA
Chief Minister's
Good Governance Associates
for a progressive Haryana

TACKLING COVID IN HARYANA

BEST PRACTICES

Pernod Ricard India
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CISCO
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Responsibility

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ACKNOWLEDGEMENTS

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ABSTRACT

Abstract

The district Administration has an integral role in providing civic amenities and ensuring the well-being of citizens, particularly during extraordinary situations like the COVID-19 pandemic.

To ensure this, various district administrations, led by respective Deputy Commissioners supported by the Chief Minister's Good Governance Associates (CMGGAs) have worked on measures to create awareness, providing interim safety and precaution, and implemented innovative ideas to mitigate the situation.

The *Compendium of COVID* best practices is a publication intended to promote information on initiatives taken by district administrations, led by Deputy Commissioners and supported by CMGGAs, to curb the spread of CoronaVirus on the ground. Each study demonstrates a typical flow of operations in controlling the COVID-19 outbreak at the district level.

FOREWORD

Dr. Rakesh Gupta, IAS

Project Director, CMGGA, Chief Minister's Office

This pandemic has adversely affected our society in various ways. Considering the challenges that emerged during the pandemic, I want to congratulate the state officials involved in the state task force setup by Hon'ble CM, all Deputy Commissioners and the CMGGAs for not only successfully curbing the spread of Covid-19 but also executing innovative pilots in their respective districts in a sustainable and scalable manner that achieved positive outcomes for the society at large.

I am happy to see the progress that every district has made in controlling and monitoring the spread of the novel coronavirus with different interventions, which has been supported by CMGGAs to ensure smooth on-ground implementation. A major achievement is the distribution of ration to the citizens at various locations during the lockdown as access to food was a major challenge during the lockdown, particularly for the vulnerable section of our society that includes daily wagers. Also, it is heartening to see the technological inventions that took place in different districts. For instance, the eCare application developed in Kurukshetra to monitor home isolated patients has helped several home quarantined patients. Further, the data triangulation technique used in Yamunanagar is a very good example of using existing technology to identify emerging hotspots which has helped the administration to take every possible measure to prevent the spread at such hotspots.

These interventions are helpful for citizens and also helped the administration to provide more customised solutions based on the district context and requirement. I acknowledge the progressive and untiring efforts made by the district administration and CMGGAs.

I wish them all the very best for their future endeavors.

FOREWORD

Vineet Gupta

Co-founder and Trustee, Ashoka University

The world is experiencing a new normal as people fight this deadly virus. As a knowledge partner, Ashoka is proud of the CMGGA programme for making remarkable efforts with tangible outcomes in tackling the spread of Covid 19 in the state of Haryana.

While Associates understands and implements the government policies, they are also involved in selective qualitative efforts of the administration in COVID support. Their involvement has helped streamline the process for managing the pandemic outbreak, initiate innovative pilots at the district level, and improve service delivery mechanisms. It is quite impressive to see the innovative approaches that the district administration has taken in data mapping and formulating customised, requirement based solutions. Ashoka University believes in shaping the best of talent in the country to impact lives in a positive way and nurturing thought leaders, particularly in such difficult times..

I would also take this opportunity to thank all our partners and CSR funders who have been supporting the program each year. I am very grateful to Cisco, Hero MotoCorp and Pernod Ricard for their consistent support to the program.

I wish all the very best to this cohort in their efforts to continue to bring the best possible change.

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INTRODUCTION

Introduction

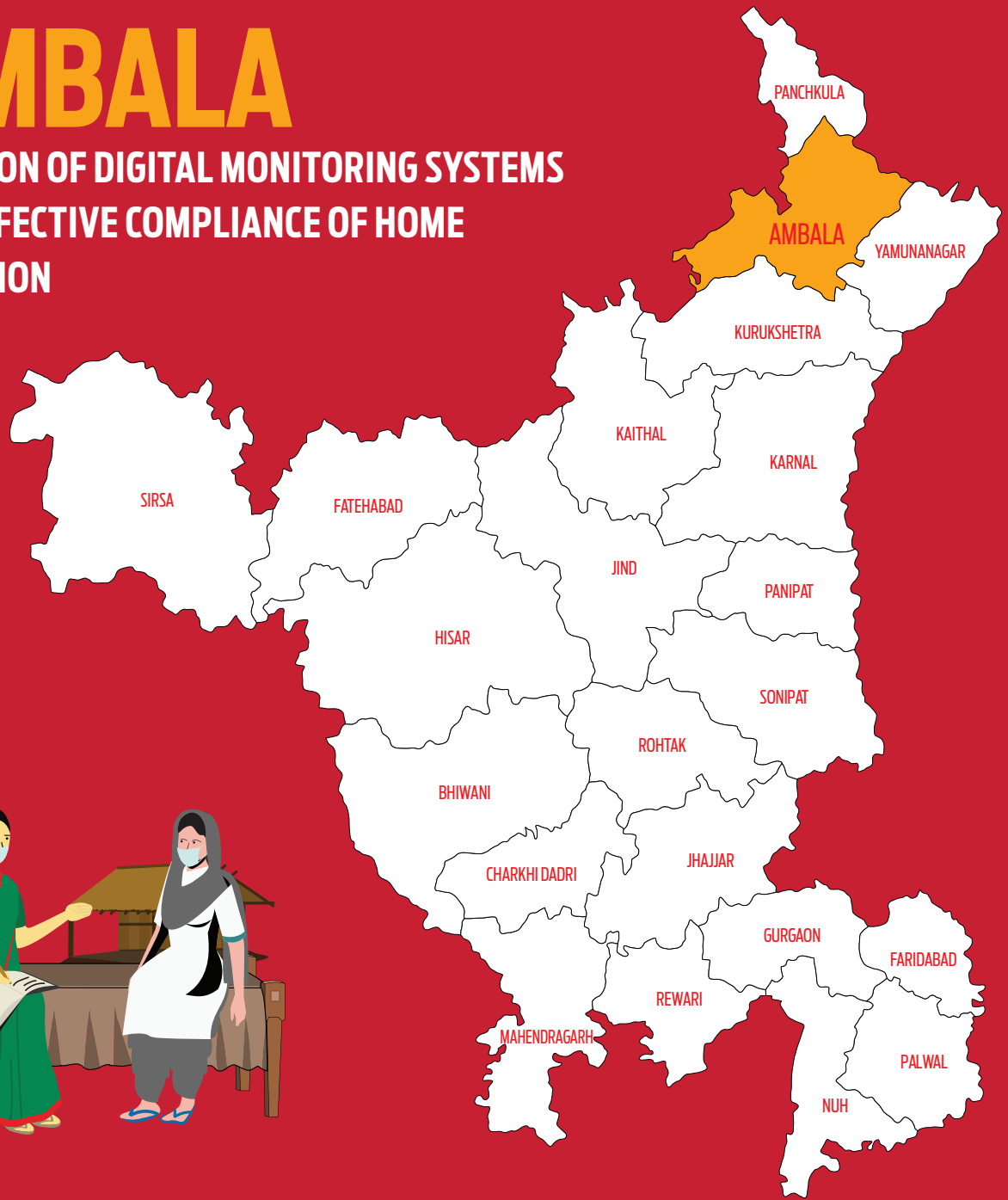
Under the dynamic leadership of Hon'ble CM Shri Manohar Lal Khattar, Haryana has followed the Government of India mandates to the core. The entire Administration of the state has put forward their extreme preparedness to ensure that the noble coronavirus restrained and people at large do not. Several interventions took place at the state and district levels, which have been successful in curbing the crisis. Technology has played a pivotal role in tackling COVID-19 as real-time data and feedback helps in increasing the responsive capacities of the system. It enables organizations to streamline their operations and make more efficient use of their resources. Some districts have produced outputs of remarkably high quality, which fall under the following heads:

- Health data systems management
- Developing contact tracing and forecasting tools
- Health infrastructure mapping and creating visibility for the citizens
- Inter-departmental coordination: Plasma bank

In this compendium of best practices, we are going to examine a series of issues and innovations implemented in a few districts of Haryana with the support of CMGGAs, that would help us understand how these initiatives get implemented and what was the impact. This report has been designed to follow a typical flow of operations. We will understand the problem statement of the district, solution design, and its implementation to cope up with the crisis and what were the outcomes to identify the needs for the future.

AMBALA

CREATION OF DIGITAL MONITORING SYSTEMS FOR EFFECTIVE COMPLIANCE OF HOME ISOLATION



AMBALA

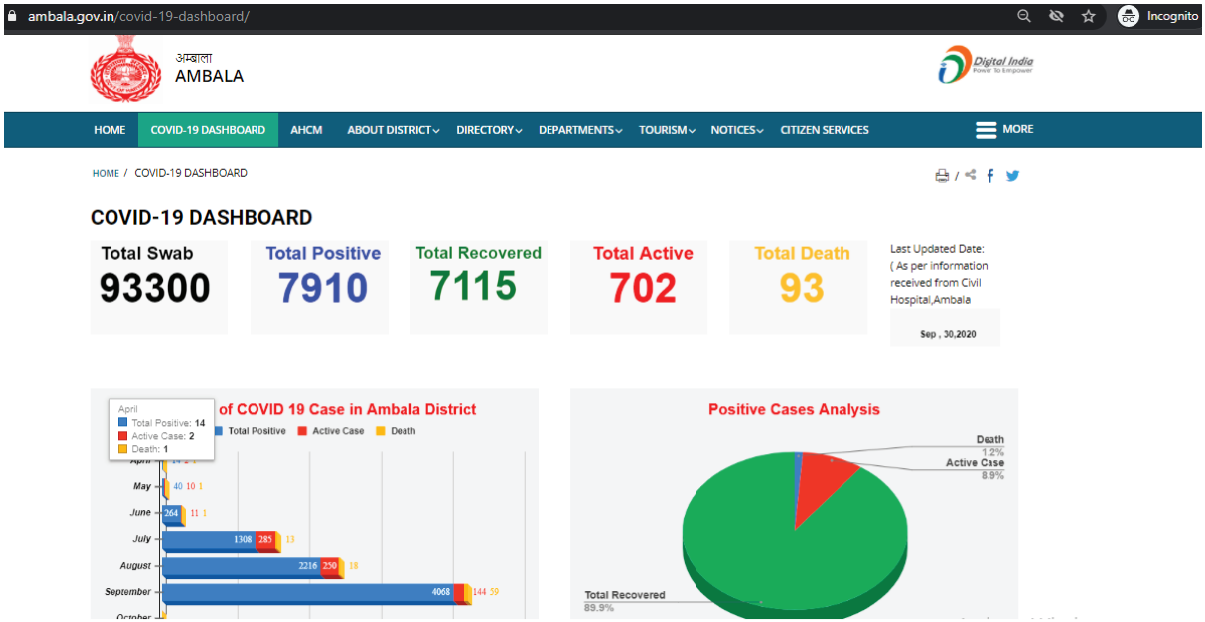
CREATION OF DIGITAL MONITORING SYSTEMS FOR EFFECTIVE COMPLIANCE OF HOME ISOLATION

Problem Statement

With an increasing number of citizens testing positive for COVID 19 in Ambala, it was critical that the district administration and the health authorities devised a mechanism to monitor the health conditions of the COVID positive patients under home isolation. As per the home isolation guidelines, patients under home isolation will stand discharged after 10 days of onset of symptoms and no fever for three days. However, a close monitoring of this was difficult since the patients, who were mandated to self monitor their health and regularly report to the district surveillance officer, were defaulting.

Solution Design

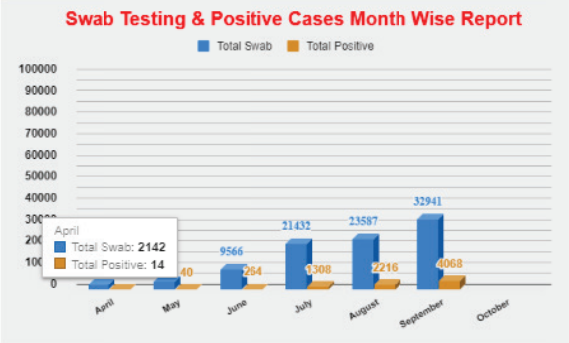
In order to solve the problem of monitoring patients under home isolation, the Ambala district devised the Ambala Covid Home Isolation Application and a real time dashboard for the administration, the Chief Medical Officer's office and the healthcare workers. The application was designed and developed to assist medical officers or doctors to collect and transfer COVID related data easily (primarily recorded vitals of the patients), without work duplication and error free to best ensure public and healthcare worker safety during the pandemic time. Whereas the dashboard is a documentation and depiction of the collected observations wherein, one can also manage employees, Health Care Facilities (HCF) - CHC/PHC Teams. Through this structure in place, teams were assigned to particular field visits and monitor their visits/progress.

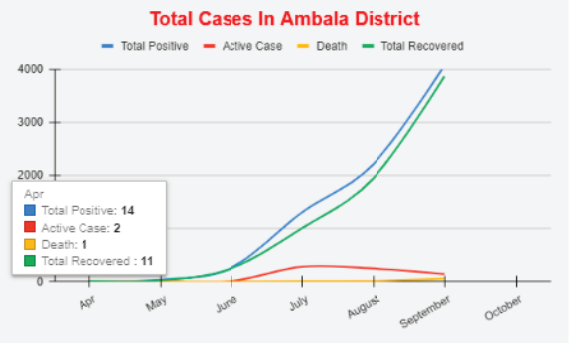


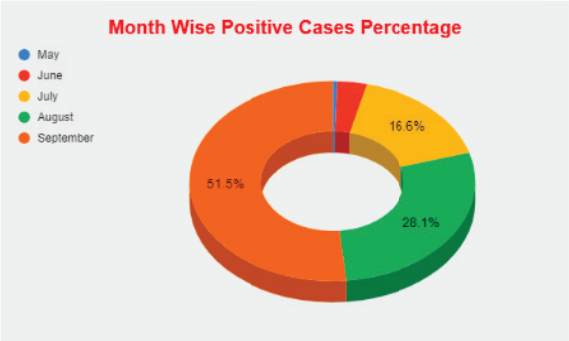
Implementation

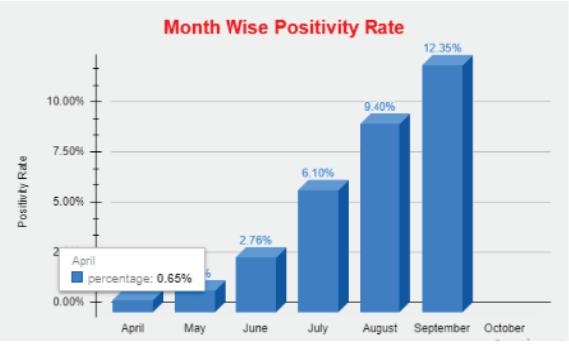
In order to implement the mechanism developed, the COVID positive patients who were under home isolation were required to do a one time registration through a mobile application downloaded on their phone. For registration, team registers the families and particular details of the family like: no. of family members, no. and types of co-morbidities, no. of COVID positive persons etc. Patients can also register themselves and provide name, age, gender, mobile no., Comorbidities and other relevant details. Fields like mobile numbers are strictly restricted to numerical inputs & only 10 digits for reducing errors.

The application is designed for ease and convenience of patients and health care workers. A QR code is generated after the patient is registered and the application of the patient gets saved as a profile for further use. The team members/examiners scanned this QR









code which is generated and fills the details of vitals during every home isolation visit. Vital parameters viz-a-viz Temperature, Pulse, Respiratory Rate, SPO2, Systolic and Diastolic Blood Pressure are captured. Based on the details fed by the team member, the classification of the patient will be done as mild, moderate or severe. Appropriate colour coding on the dashboard as red for severe/critical or purple for COVID positive and comorbid is done. The administrator and/or healthcare worker can take the required actions: continue Home Isolation, Transfer to Health Care Facility/Hospital or Discharge after viewing & verifying inputs of Duration/Condition of patient. For patients who do not use a smartphone, a QR code can be generated from the hospital facilities and be provided the same to the patient for the entire period of his isolation.

Results

Dashboard

All the data is pulled in one cohesive platform to help in tracking real time information. Dashboard shows overall cases, active cases and segregates the data under the Health Care Facility. Comprehensive list as per the status of patients like positive cases, mild, moderate, severe is shown. Log of more than 2500 cases is maintained separately. The log also shows the complete history of the patient: demographic details, comorbid condition, visit date and time, employee and centre name, duration of isolation etc. The dashboard will be visible to W/Deputy Commissioner, W/Additional Deputy Commissioner, & W/CMO and/or his representative for monitoring purposes. The dashboard is added on the district's website and the same can be accessed by the administrators using the credentials provided. Separate login credentials of the same are shared already.

Alerts

Lastly, the application provides alert for discharge and condition of patient in a colour coded form. If the situation of the home isolated patient does not improve after the final visit of the team/examiner which is normally the 10th day, then the examiner has a choice to admit the patient to a hospital. This can also be done through the application by selecting Hospital (at the end of the 10 day period). Alternative, team chose discharge if the patient is fit and does now show critical vitals.

BHIWANI

HOME DELIVERY OF PDS RATION

PANCHKULA
AMBALA
YAMUNANAGAR
KURUKSHETRA
KAITHAL
KARNAL
SIRSA
FATEHABAD
JIND
PANIPAT
HISAR
SONIPAT
ROHTAK
BHIWANI
JHAJJAR
CHARKHI DADRI
GURGAON
FARIDABAD
REWARI
MAHENDRAGARH
PALWAL
NUH

BHIWANI

HOME DELIVERY OF PDS RATION

Problem Statement

The worst affected by the COVID-19 induced lockdown in the country are the poor and the marginalized. Not being able to commute puts a halt in their daily process of earning a wage and purchasing essential items for survival. The government emphasized that efforts be taken to ensure food essentials are provided to the daily wage labourers, slum dwellers, unregistered workers, etc. It was also announced that the ration for BPL/AAY/OPH families would be provided free of cost for the month of April.

Solution Design

Bhiwani district administration realized that two aspects were crucial regarding distribution of ration- first that it needs to be distributed at the earliest possible to eliminate any and all hardships faced by the card-holders, and second that the ration needs to be delivered at the door step of every card-holder to avoid crowds at PDS depots during lockdown and social distancing is maintained in order to prevent the spread of the virus. A meeting was called under the chairmanship of the Deputy Commissioner, Bhiwani, to formulate a detailed plan. It was decided that the depot holders would hire vehicles for distributing ration at the doorstep and District Administration will bear the cost of transportation to be incurred by depot holders for home delivery of ration.

Scale of Distribution

The target was to distribute all the entitlements of BPL/AAY/OPH card-holders in the district by the first week of April.

Data related to card-holders in Bhiwani District:

Total no. of depot holders in the district	357
Total no. of ration card holders in the district	1,36,813
a) AAY card-holders	14,023
b) BPL card-holders	48,831
c) OPH card-holders	73,959
Total no. of availed ration cards	**1,25,314**

Commodities distributed till May:

Commodity	Volume
Wheat	2,944 MT
Sugar	46 MT
Mustard Oil	42,643 L
No. of Transactions	1,42,234

* No. of vehicles used by depot holders: 400 * No. of helpers assigned to vehicles: 826

Implementation

The success of the strategy was made possible by three major factors:

Quick and Planned Action

Based on discussion with depot holders and other field staff, District Food & Supplies Controller (DFSC) decided to set precedence for the process of home delivery. Step-wise cadence was set for each of the official and depot holders in the meeting and district strategy was developed in the meeting.

- The depot holders would arrange different vehicles, including 2-wheelers for short distances, auto rickshaws for a large number of card holders in a single area and tractors/trolleys where the area to be covered was very large.
- Two helpers per depot holder were assigned for the weighing and distribution of ration.
- Number of trips to be made were calculated on the basis of size. Some of the depot holders were allowed to deploy two vehicles in case of very high numbers of card-holders.
- The depot holders were not to wait for all the commodities to arrive for the distribution to start. They were to start the distribution of available commodities immediately.
- The permissions and temporary ID cards required to commute during the lockdown were delivered to the depot holders by the field staff.
- Depot holders have used scooters, motorcycles, hand pushed rickshaws, pickup, tractors, auto-rickshaws, carriers, cars etc. for delivery of ration to people at their doorstep.

Streamlining End-to-end Communication

- Data sheets with contact details, individual responsibilities, vehicle numbers, helpers assigned, card-holders to cover etc. were created for smooth and targeted communication and monitoring across all the eight blocks in the district.
- The Gram Panchayats took up the responsibility for spreading the information to the households to stay indoors and assuring that the ration would be delivered to their homes.

Volunteering Spirit

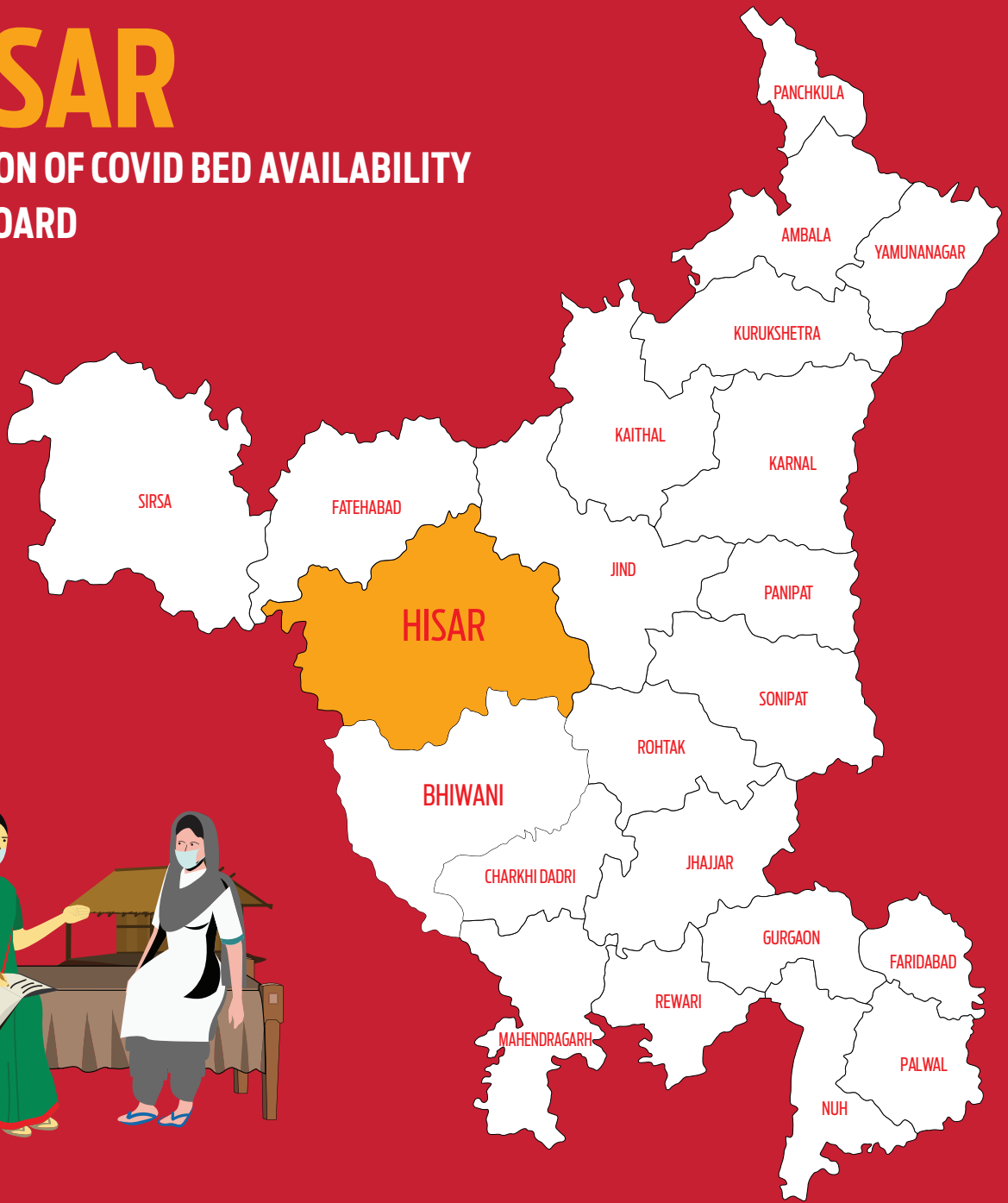
- The DFSC motivated the depot holders and they agreed to bear the cost of transportation and vehicles as their contribution to the lockdown measures.
- The inspectors were directed to be in the field and to remain in touch with the depot holders at all times to monitor the progress and quickly solve challenges.

Results

In first four days of this month, home delivery of ration was provided to over 95,000 holders in the district. In one week, over 90% ration had been distributed. Through proper planning, seamless execution and participation of all stakeholders, the Bhiwani district administration has been ensuring the timely distribution of ration to all the card-holders and at the same time emphasizing on the importance of implementation of lockdown measures through door-step delivery of ration, so that the citizens stay home and stay safe.

HISAR

CREATION OF COVID BED AVAILABILITY DASHBOARD



HISAR

CREATION OF COVID BED AVAILABILITY DASHBOARD

Problem Statement

As the number of Corona cases were increasing, the citizens wanted to understand the nearest available hospital serving Covid-19 patients as well as the availability of beds there. The need for creating a digital platform for transparent information flow to citizens about bed availability was felt..

Solution Design

Under the leadership and guidance of W/DC Hisar Dr. Priyanka Soni, a Bed Availability dashboard was created using Google My Maps and using Excel as a backend tool for updation of information.

Implementation

Conducted stakeholder consultations:

1. Stakeholder consultations were driven with Covid Incharge of Hisar (Dr Tarun Kumar Deputy Civil Surgeon Hisar, Health & Training) and got to know that there are many different types of abode for patients affected by Covid-19: 1) CCC: Covid Care Centres: These are non-medical centres for asymptomatic patients so that they cannot spread the virus. 2) DCHCs and DCHs: Dedicated Covid Health Centres (Private Hospitals) and DCH (Dedicated Covid Hospitals) are hospitals for patients ranging from mild to severe patients with oxygen and ventilator support. No proper information dissemination is done about the different centres and the bed availability in the same.

2. After research and discussion with the DIO (District Informatics Officer), Sh. M P Kulshrestha from NIC (National Informatics Centre), came to the conclusion that Google My Maps is the best solution for implementing location-based mapping and a feature to show bed availability about the hospitals in the area near you.

Using Technology to problem solve

An excel was created for both the Civil Hospital and the NIC for collection of data from hospitals and the updation of data on the Google My Maps Dashboard respectively. Data was collected from both private and public hospitals. Nodal officer was appointed at Civil Hospital and NIC for this project. A whatsapp group was created specifically for avoiding lack of coordination between both departments.

Excel for the CMO

	DCHCs	Not to be updated on portal	Not to be updated on portal
Sr No	Name of Institution	Critically ill patients (To be updated daily by CMO)	Symptomatic patients (to be updated daily by CMO)
1	Aadhar Hospital		
2	Medi City Hospital		
3	Geetanjali Hospital		

Formula based excel Excel sheet for the NIC

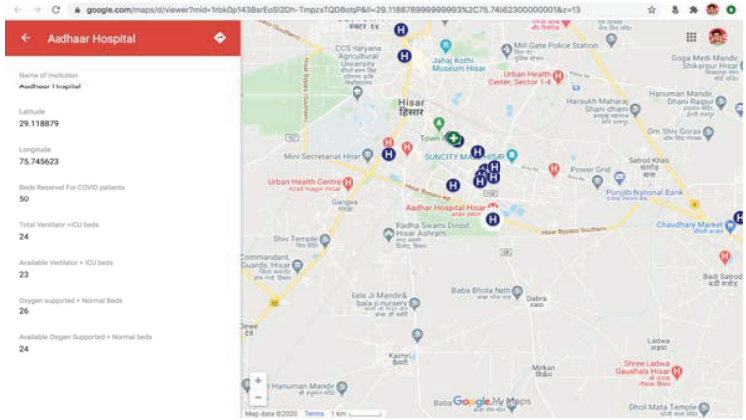
A				Not to be updated on portal			Not to be updated on portal	
Sr No	Name of Institution	Beds Reserved For COVID patients	Total Ventilator + ICU beds	Critically ill patients (to be updated dally by CMO)	Available Ventilator + ICU beds	Oxygen supported + Normal Beds	Symptomatic patients (To be updated dally by CMO)	Available Oxygen supported + Normal Beds
1	Aadhar Hospital	50	24		24	26		26
2	Medi City Hospital	13	0		0	13		13
3	Geetanjali Hospital	16	6		6	10		10

Launch of the Dashboard

Dashboard Link: https://tinyurl.com/HisarCovidBedAvailability

The Covid Bed Availability Dashboard is a part of the Covid-19 Dashboards launched by the district administration on 7th September 2020.

Through the dashboard, the public can locate the nearest hospital in their area (both private and public). They get the information about the total no. of normal+ oxygen supported beds and the total no. of Ventilator Support + ICU beds and their availability.



DC Hisar Dr. Priyanka Soni, DIO; Sh. M P Kulshreeshtha, and ADIO; Akhilesh Kumar launching the Covid-19 Dashboard

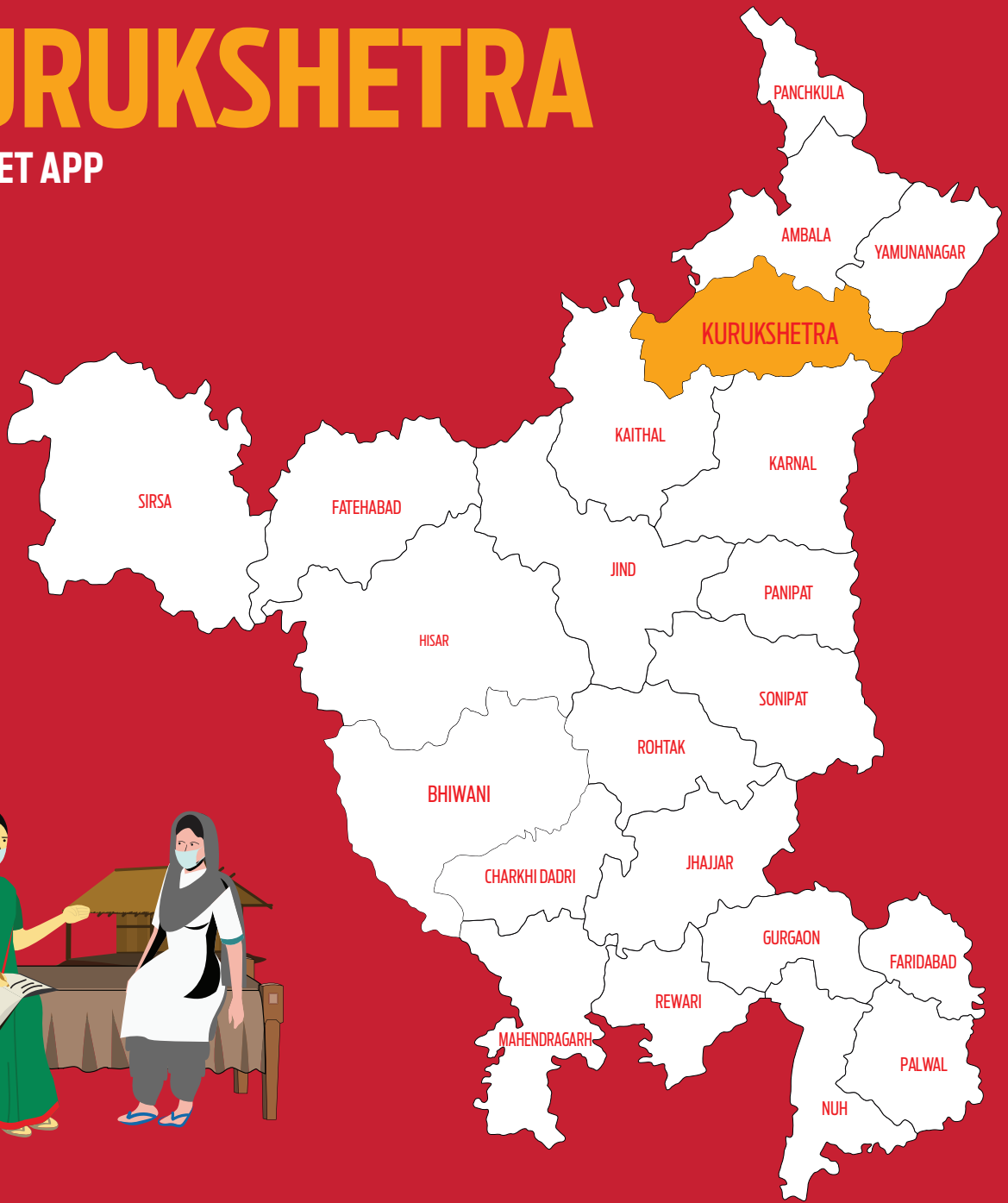
Results

- 5000+ visits to the dashboard in less than 2 months.
- A decrease in the no. of calls to the Call Centre related to Bed Availability.
- Easy and improvised IEC (Information,Education and Communication) strategy.

With the increasing number of Corona Cases, the Covid 19 Bed Availability Dashboard would serve as a great deal of a time saver for the citizens, doctors working at the Medical Department and the administration for quick and transparent access to information.

KURUKSHETRA

EMARKET APP



KURUKSHETRA

eMARKET APP

Problem Statement

Due to the nationwide lockdown promulgated for containment of COVID-19 from 25 March, various situations arose in front of administration at different levels in the country. Immediately after the lockdown, the need of providing essential services for the needy was evident and some initiatives were taken by the Kurukshetra district administration to address this.

The local administration started working towards providing essential services like medical and health, grocery, vegetable, dairy and bakery products, stationary, animal husbandry etc at the door steps of vulnerable public.

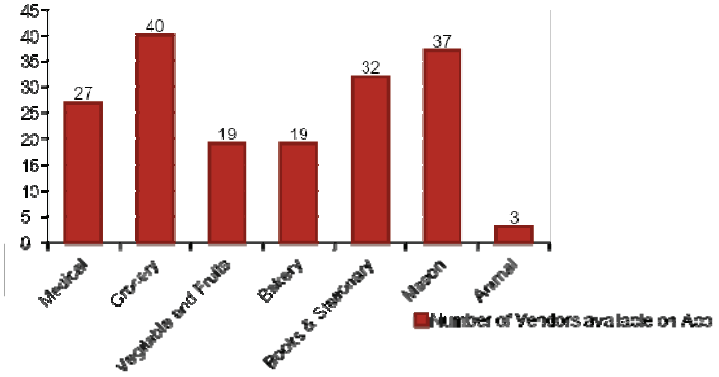
It was a huge challenge in front of district administration to manage all the requirements and queries from the whole district. A control room was established to find out the requirement of people residing in the city. As per the analysis of the calls received in the control room, the administration came to the conclusion that the majority of the calls were for the requirement of essential services only. The public were suffering from paucity of essential goods and services required in routine use. A lot of requests were coming to issue movement passes to buy these goods or to get these essential services. Issuing passes probably destroyed the objective of social distancing among the general public which was very essential for the containment of Coronavirus. At the same time it was essential to have solutions to the major problem. Many vendors submitted their consent to provide these services to the public at their doorstep. It became essential to have a common platform where the service provider and seeker can meet and exchange their requirements. After a brainstorming activity done between district administration and National Informatics Center, a user friendly solution that emerged was the eMarket Kurukshetra app.

Solution Design

eMarket Kurukshetra app is an app developed with the combined efforts of the district administration and National Informatics Center Kurukshetra and is available in play stores and http://kurukshetra.gov.in/eMarket. It is very small in size (2.5 MB) and user friendly so that every layman can use it without any problem.

This app provides a platform where goods and service seekers can search a person in their nearby surroundings who can provide these goods and services at the seeker's door step. The modus operandi is very easy and user friendly. Anybody in the public having a smartphone, can install this app on his smartphone. An individual can place an order for any of his requirements by following the mentioned steps.

1. **Selection of Category:-** Initially, the goods and service seeker have to choose the category goods and services he wants to avail. There are seven categories of services available in the app which are Medical, grocery, vegetables and fruit, Bakery dairy, books/stationary, mason, animal.
2. **Selection of area:-** After selecting the category of service required, the service seeker has to select the area he/she belongs to and where he/she wants to get these services.
3. **Selection of Vendor:-** After selecting the area, a list of service providers along with their phone number emerges on the screen of the mobile. Service seekers can now select the vendor whose services he wants to access.
4. **Placing Order:-** One can connect service providers on the available mobile number telephonically or can place his order on WhatsApp.
5. **Payment option:-** Next step is to choose the payment options among the options available on the app which include Cash on delivery, Bhim app (UPI Code), Paytm, PhonePe etc.

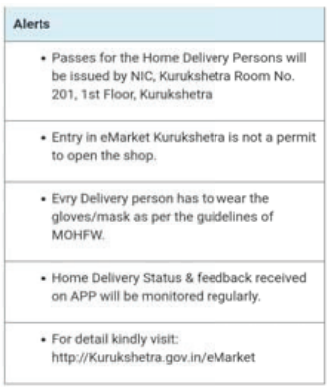


Implementation

Information on creation of this app has been propagated among the public with all the resources of communication available with the administration so that every individual can have this app installed in their smartphone and get the services of the vendor available on the app. Any new vendor who wants to provide services voluntarily to the public in this epidemic can register him/herself on this app any time.

Notification/Alerts

A special feature of notification has been added in the app to provide information to the service providers and service seekers when required. If there is any additional information which district administration or NIC wants to convey to the general public or to the vendors, a facility of sending notification is available in the app, which can update everyone with the new instructions coming from various levels and departments to the district administration.



Issuance of Passes to the vendors:-

Ample numbers of passes, with area and time specification, were issued to the vendors providing services of home delivery in each and every corner of the city. Vendors were free to roam in the city and provide the essential stuff to the public at their doorstep which helps social distancing prevail among the public.

Monitoring

Implementation of any program is impossible in the absence of a proper monitoring mechanism. Special features added in the app based on feedback are mentioned below.

Feedback:- Any service seekers using the services of any vendor registered in the app can provide his/her feedback on the option available on the top of the app. Feedbacks are taken seriously and proper action is taken on its basis. These actions might even lead to removal of vendors who are not providing services properly.

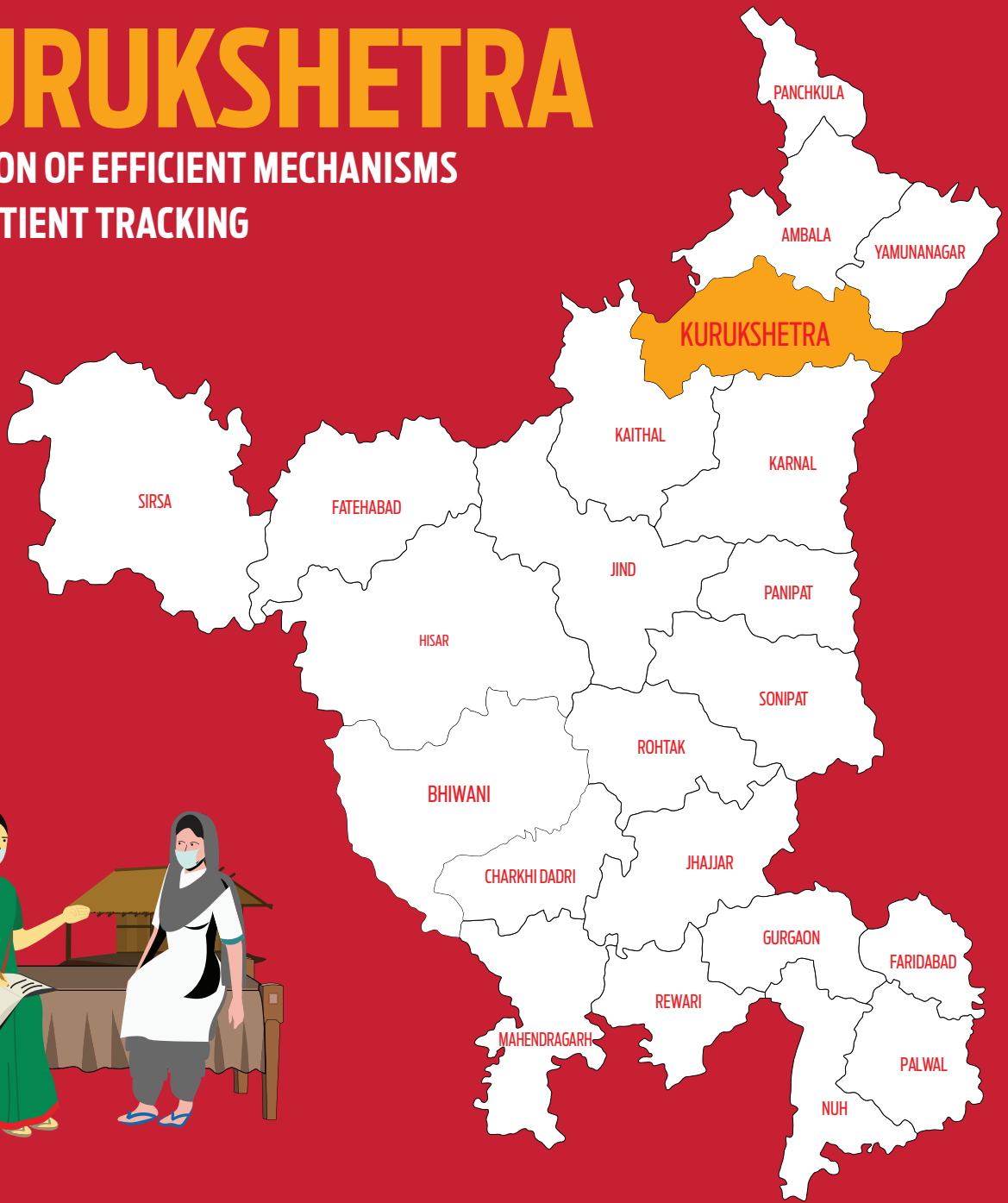
Results

This app helped the:

1. general public to get their essential services at their door steps.
2. vendors to supply their goods and services to the people who required them and to earn their livelihood even in adverse situations of the economy.
3. police department to maintain law and order as fewer people came on the roads for their essential requirements.
4. district administration to maintain social distancing in the district and to contain the spread of coronavirus.
5. district administration to communicate with service providers and seekers regarding new updates.

KURUKSHETRA

CREATION OF EFFICIENT MECHANISMS FOR PATIENT TRACKING



KURUKSHETRA

CREATION OF EFFICIENT MECHANISMS FOR PATIENT TRACKING

Problem Statement

COVID-19 patient management in Kurukshetra became a challenging task when the cases started to rise exponentially in the month of August. The existing management of information through WhatsApp and emails became a tedious job and was a source of inconsistent and incomplete records. It was observed that the medical team took close to 2 days' time to compile data needed by administration for patients in a facility or hotspot region. The lack of real time access to critical data led to delay in prompt decision making and slowed down the response management.

District Administration, Kurukshetra realized that it is important to stick to the concept of 3Ts- Track, Test and Treat in order to curb the spread. The success of the 3T model was dependent on a system that supports the backend data management of patients and eliminates the manual efforts required to maintain the data.

Solution Design

The complete solution design of the eCare Kurukshetra app and web portal ties all the open ends and helps us to solve all related problems in the COVID 19 management:

1. Result declaration

Potential high risk COVID 19 patients had no systematic way to get their results in time. This led to an increase in the susceptibility of other citizens by the virus and needed a robust solution to communicate results to ensure on-time isolation.

2. Record management

The record management in different formats required redundant manual data entries, consuming precious time of our medical teams and it led to inconsistent and delayed data reporting.

3. Review and Monitoring

Records are managed and shared in different pro formas and files. Different formats meant that there was no unified format to refer for future analysis and became a challenge for regular review and monitoring of health infrastructure.

3. Treatment journey

There was a need to get more real-time visibility in each patient's journey from testing to treatment. The current procedure had separate records for one individual at each stage, and delay in compiling them to look at the complete picture was a concern.

Implementation

eCare Kurukshetra is available as an android application and a web portal. The app and the portal both have multi-user role-based structure. This was a feasible solution because on ground implementation of a single app with multiple user roles is easier as compared to multiple apps with different uses.

The app has following user roles:

a. Super Admin - IDSP users

b. Admin - CMGGA, DIO

c. Monitoring - DC, SDM, Tehsildar

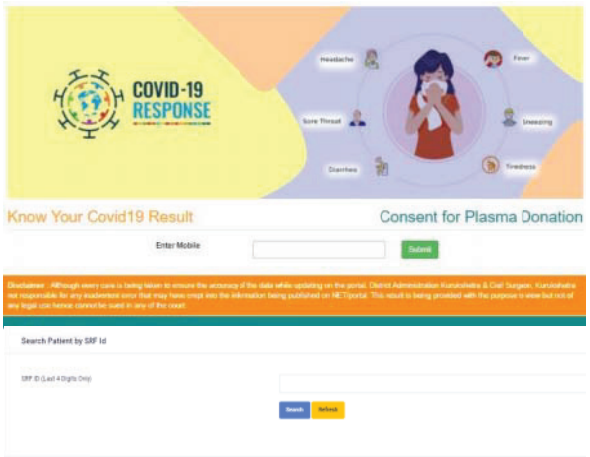
d. Medical teams - CMO, SMO, MO, IEA, ANM, Facility (DCH,DCCC,DCHC) e. Control Room - Data entry operator

f. Citizens

g. Patients

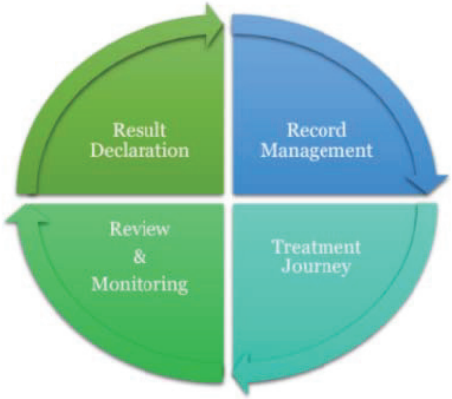
COVID-19 Test Result via Mobile number and via SRF Id

A consolidated patient record facilitates speedy result declaration. The link to know the COVID-19 test result is also hosted on the website of Kurukshetra district administration . Database sits at the backend of this feature and empowers the citizens to know their results through their RMN at the time of sampling. This is protected through an OTP mechanism. The control room gets an average of 15 calls regarding enquiry of test results. The operator can access the results through the last 4 digits of the SRF ID.



Scheduled data parsing

The data from ICMR analytics (https://cvanalytics.icmr.org.in/login.php) portal is parsed after every 30 mins into the database of the app and portal. This creates the initial record of the patient from the time of sampling. The data already contains the status of the result of both RA and RT PCR. The parsing mechanism reduces manual entries and the entries are just limited to the time of sampling.



Update CHC/PHC

The records of the patients start to reflect under the IDSP team user role where they start to mark CHC/PHC/UPHC for each patient record. This is a dropdown selection and the marking is done on the basis of the address of the patient. There is a single directory ofregion/village to CHC/PHC/UPHC that facilitates the entire process.

Update for line listings and DCH/DCCC/DCHC/HI

Once the patient has been allocated to the respective health care center, the field team visits the patient and on the spot fills the information related to his/her occupation, source of infection, facility (DCH/DCCC/DCHC/HI). There is an occupancy check feature for each of the facilities that prompts the user about occupancy in the respective facility.

Update patient status

The Medical team (SMO/MO) marks the current status (Active, Death, Out of district, Recovered, Repeat Sample, Result unknown, Untraced) of every patient allocated to their health care center.

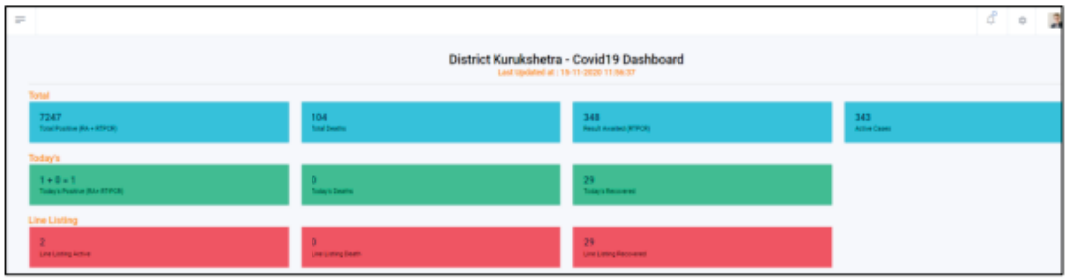
Search Patient

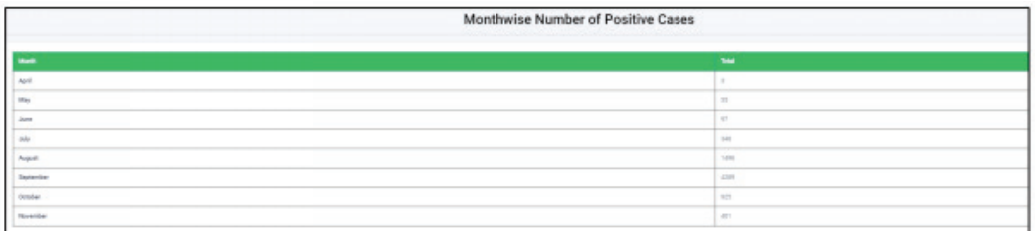
A blanket search that helps the administration to locate the patients in this journey of treatment. A patient can be searched using first 3 characters of Name and/or Mobile and/or Father/Husband Name and/or Age range and/or Sex and/or CHC/PHC etc.

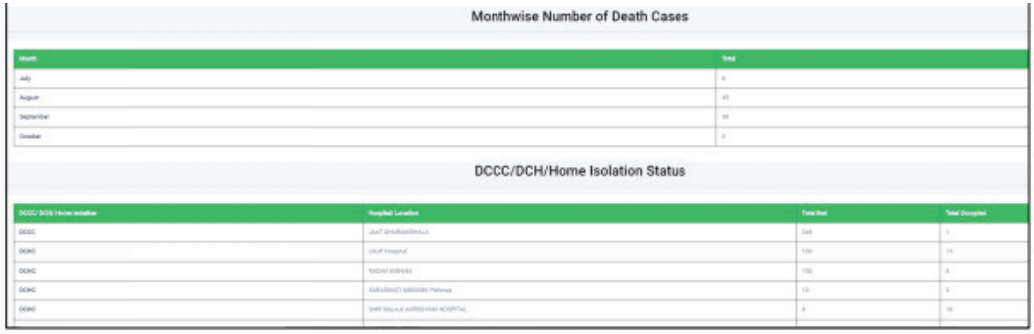
Patients Vitals reporting through patients or through on field teams As soon as the patient becomes active in the database, his/her RNM is activated as a patient and is automatically authorized to enter vital parameters. A link to download the app is sent to the patients via SMS. The field team during the visit to the patient makes the patient/caregiver download the app and to start operating it. Notifications are sent to concerned SMO/MO in case the vitals of the patient are alarming or if the patient has not filled the vital parameters. In order to address the ground level challenges of unavailability of internet/smartphone, there is an access given to ANMs to fill the vitals on behalf of the patients.

Dashboard and Analysis

Interactive dashboards are available for both administration and medical teams to help in early preparedness.

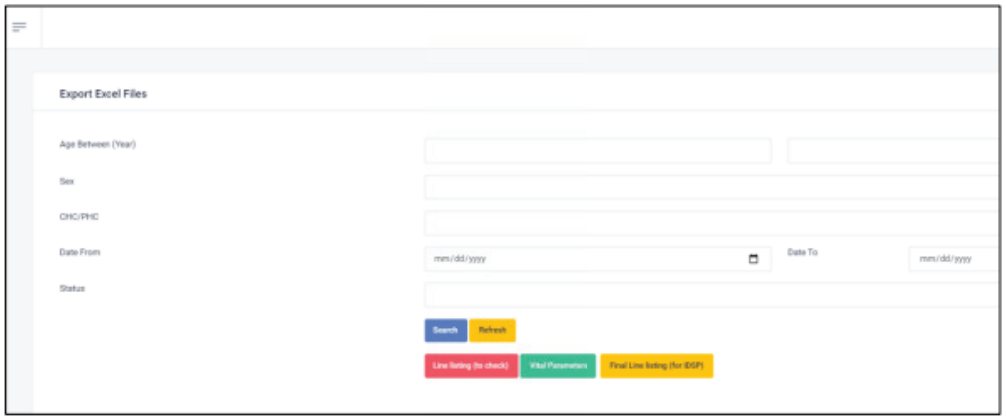






Export data

This feature reduces the task to compile the data in various proformas. It allows the user to download the data in any format depending upon the proformas required. All the data is compiled and formulated as per the desired format with just a single click and minimal manual interventions.



Call Patients

This feature enables the administration to reach patients with just a single click. The patient feels backed and secured in terms of health infrastructure and support by the district administration.

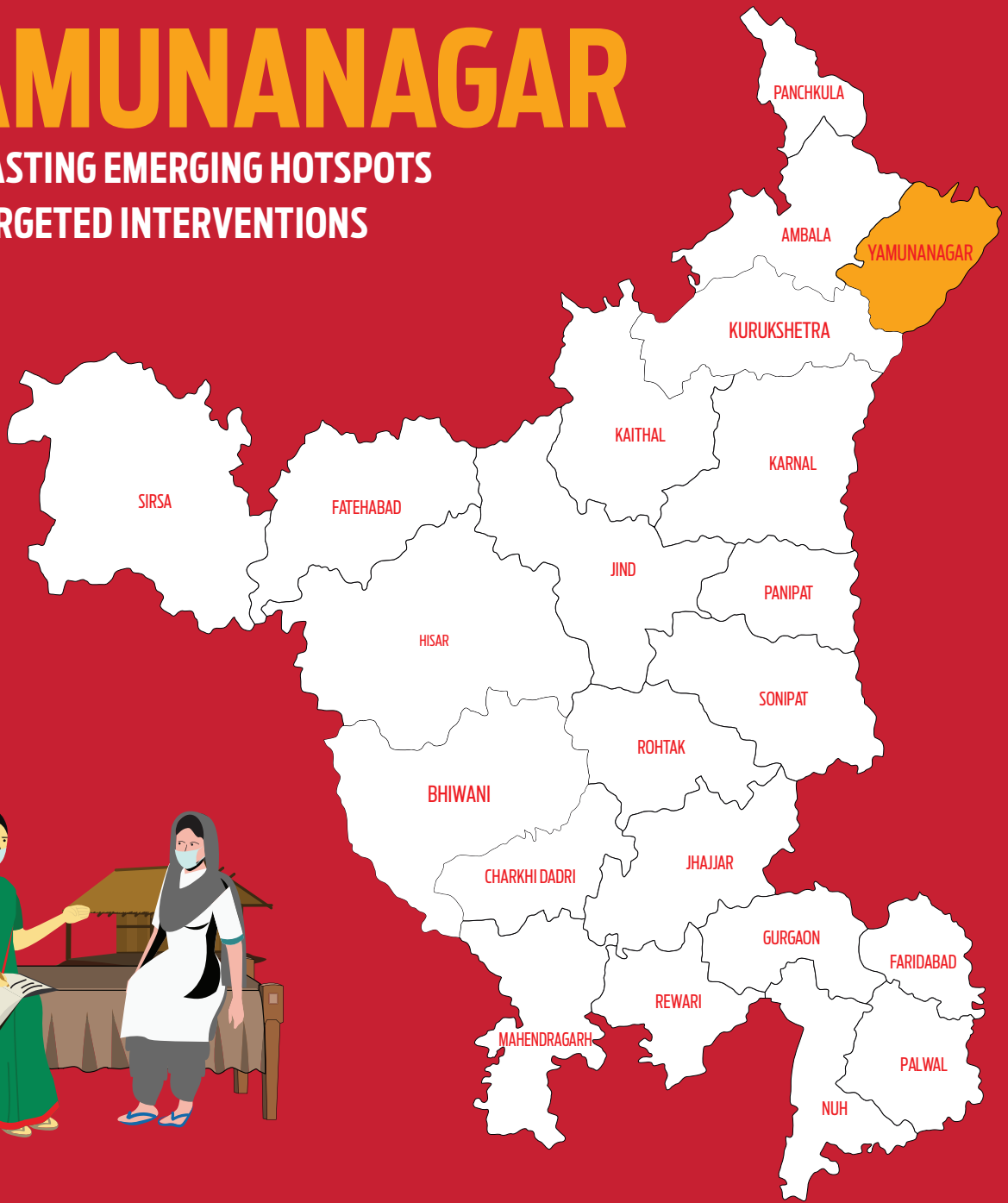
Results

- Reduced communication of patient records on WhatsApp groups and emails
- Early result declaration and on time offset of treatment
- Reduced grievance from citizens on complaints
- Real time response management
- Bare minimum manual interventions and reduced human errors through maker checker via user roles.
- Improved patient tracing and contact tracing
- Efficient and early preparedness with decision making based on the interactive analysis and dashboards

All this helped District Administration to curb the spread of Covid 19, The per day reported positive cases in the district reduced by 70% from September to October.

YAMUNANAGAR

FORECASTING EMERGING HOTSPOTS FOR TARGETED INTERVENTIONS



YAMUNANAGAR

FORECASTING EMERGING HOTSPOTS FOR TARGETED INTERVENTIONS

Problem Statement

One of the critical components of COVID-19 response has been effective testing. As the testing is ramped up, the challenge that arises at the grassroots is where and who should be tested so that we can attain high efficiency. COVID tests being a critical resource, there is a need to strategically utilize them by the administration in COVID-19 response. The COVID information systems such as MoFHW dashboards, HRSAC COVID density maps provide critical insights to direct the response on ground. However, most of these data sets provide a macro picture and suffer from poor accuracy. For this, the Yamunanagar administration designed a sampling strategy by triangulating information across multiple sources of data and leveraging field insights. The outcome are hotspot areas which are identified across the district where sampling is then directed. The aim of the strategy is to identify, isolate and predict emerging COVID-19 hotspots.At a district level in Haryana, there are 3 sources of information about COVID-19 cases.

1. Arogya Setu (AS)-ITIHAS Portal

Aarogya Setu app, coupled with ITIHAS system and anchored by the Ministry of Electronics and Information Technology (MeIT), provides information about cluster development of COVID through an online dashboard. The system gives insights based on monitoring of positive cases and their movements. We source a list of AS predicted hotspots and details of movement for contact tracing. While the system is able to forecast emerging hotspots, the data gives a bird's eye view and suffers from poor accuracy. Since the information from Arogya Setu is user dependent, the data becomes susceptible to errors.

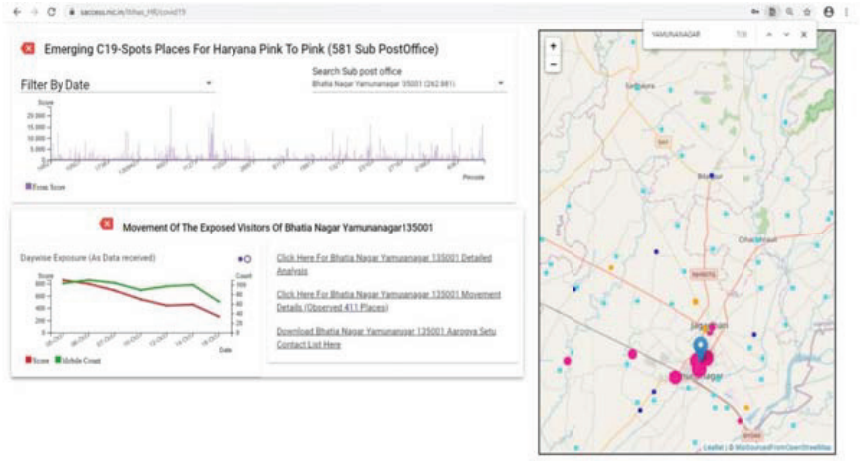


Fig 1: AS-ITIHAS dashboard

POSITIVE LINE LIST DISTRICT YNR

SR.NO.	District	ICMR	Name	Age	Sex	Address	RURAL/URBAN	Mobile no.	Occupation	Patient on treatment of Hepatitis B/C (Y/N if Yes specify	Possible Source of infection	Observation started from	Hospital Where admitted/Quarantine Facility/ Home Isolation	Date of sample Collection	Date of Declaraion	Current Status	Current Staus (Admitted/Home isolation/ DISCHARGED/Death/	Contact Traced

Fig 2: Positive Line List proforma of the district

2. Internal COVID Positive Line List

This is the official database of all the positive cases in the district. The same data is uploaded on ICMR and State health portals from the backend and is the basis for other COVID-19 dashboards. This data does not have the ability to forecast area/cluster level projections but has the highest accuracy among all the sources available. Analysis of this data gives insights such as areas with the highest number of cases in the last 15 days, contacts traced etc. Through this data source, we are able to get micro-level visibility on areas with positive cases.

3. COVID-19 Density Maps

The maps are prepared by Haryana Space Application Centre (HRSAC) as part of the state's COVID-19 response. The density maps help visualize the spread of COVID-19 in the district, especially urban areas. It also evaluates the COVID situation on a higher risk metric of population density, thus helping rationalize the response on ground. Ward numbers are shown in black and number of cases in blue. Wards are shown in red, yellow and green gradation depending on risk and spread level of virus. Targeted strategies are then developed for high risk wards with push for testing in these areas.

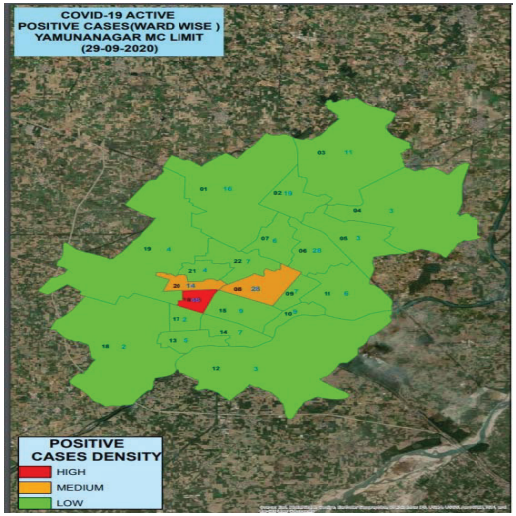


Fig 3: COVID-19 density maps for YNR urban

The insights from IT-driven tools have played a critical role in responding to the COVID-19 pandemic. However, the online dashboards need to be combined with field inputs and applied within local context for effective usage. Yamunanagar administration has designed and been implementing a sampling strategy using the above 3 sources of data and overcoming their individual limitations through data triangulation and field insights. This way they have been driving the daily ~1000 tests/day in the district.

Solution Design

These data sources exist in silos and are not dealt with the same department at the district. There is also a lack of analytical capacity for data analysis and strategizing at the ground level. All the three data have their uses and limitations. We analyzed the areas forecasted by Arogya Setu with the Internal Line List and used the Internal Line List to mitigate the poor accuracy of Arogya Setu projections. Various insights are further derived such as - number of cases in the forecasted areas, pattern of recurrence of cases, variation of number of cases within an area/ village. These insights are then used to drive testing in and around hotspot areas. This way they were able to combine the macro level hotspot information with the ground level visibility.

The COVID-19 density maps help us triangulate emerging hotspots, especially for urban areas. Combining information about high risk wards of the city with the Internal Line List, we are able to identify stretches of residential areas and local markets/stand alone shops that might be acting as super spreaders. With the help of elected ward officials, the health team conducts routine testing in the identified areas. The visual representation through maps helps gauge the impact of COVID-19 response.

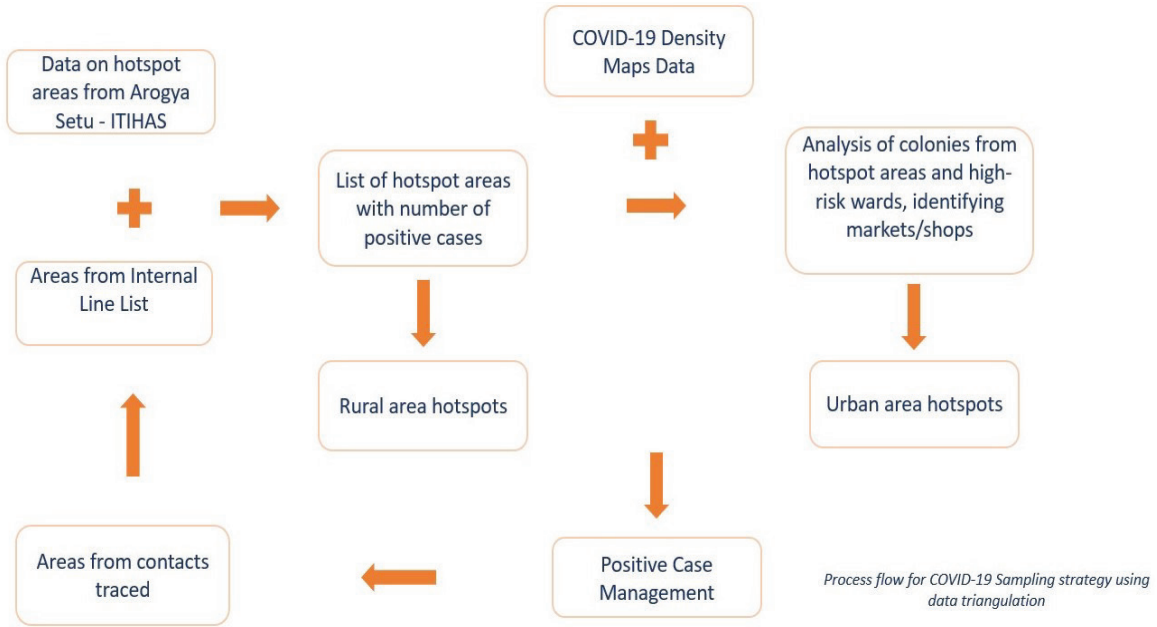


Fig 4: *Yamunanagar COVID-19 sampling strategy design using data triangulation*

Implementation

Another challenge with using data insights on ground is that the three different sources are handled by different departments. The Arogya-Setu-Itihas information is received by NIC, the Internal Line List maintained by the Health department and the COVID-19 density maps are received by the Deputy Commissioner Office or NIC. The district Covid Crisis Coordination Committee under DC took the lead.

A team of 2 Junior Programmers from NIC was created and the cadence of sharing Internal Line List by the Health department was set. Similarly, the team coordinated with a representative from Haryana Space Application Centre (HRSAC) to get regular COVID-19 density maps. The data across the three sources was analyzed and insights drawn after incorporating field level inputs. The areas were marked on the district map to understand and visualize the emerging hotspots in different pockets. These insights were then shared with the Health department to drive the testing on ground.

	Area	No. Of cases in August
Areas common between Arogya Setu emerging hotspots and internal line list	Model Town	30
	Sadhaura	25
	Naharpur	14
	Bhatia Nagar	10
	Khera	5
	Mustafabad	5
	Uncha Chandana	3
	Mehlanwali	3
	Rampura	3
	Jagadhri workshop	2
	Manglore	2
	Bakana	1
	Bhagumazra	1
	Chachrauli	1
	Ghillaur	1
	Haveli	1
	Kalanapur	1
	Kharwan village	1
	Pansra	1
	Sarawan	1
	Shadipur	1
	Sugar Mill	1

Emerging hotspot area	Pin Code	Risk	No. of cases (22 Sept - 22 Oct 20)
Bilaspur (Yamunanagar)	135102	VHigh	37
Damla	135002	VHigh	19
Jagadhri Town	135003	VHigh	37*
Model Town	135001	VHigh	60*
Sadhaura	133204	VHigh	22
Buriya	135101	High	19
Mustafbad	133103	Medium	19
Jagadhri	135003	Low	20*
Radaur	135133	Low	25

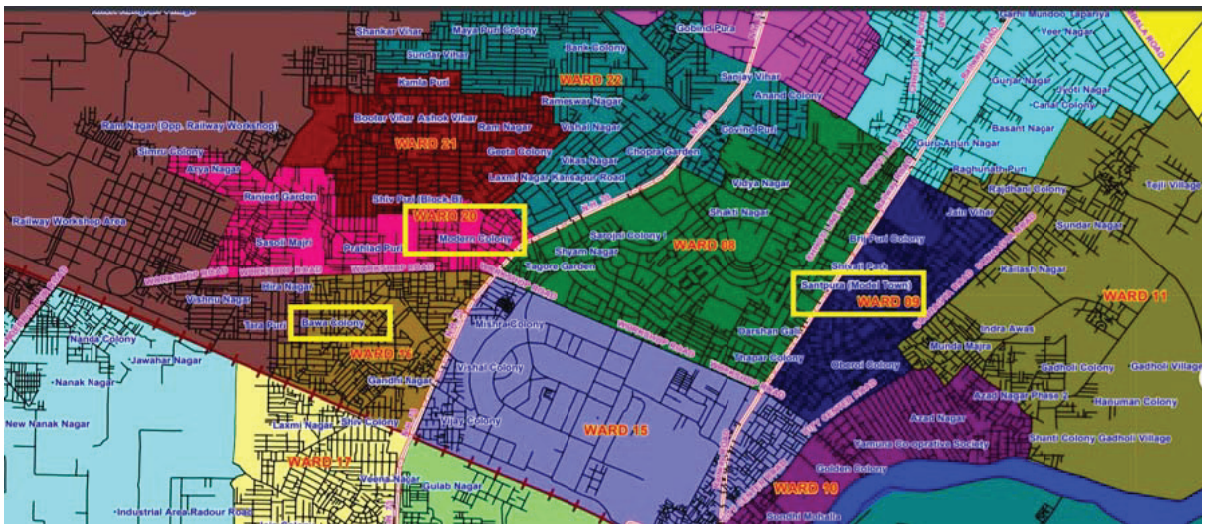
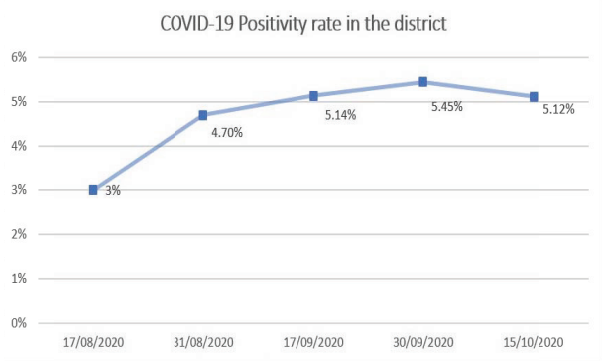


Fig 5: *Areas analyzed and marked on district map for testing after including field inputs*

Results

We now have a declining trend in active cases and over 90% recovery rate. This is an achievement of a multi-dimensional exhaustive COVID-19 response. The sampling strategy has played two critical roles – 1. solved the problem of scaling up effective testing and 2. aggressively identified hotspot areas and trace and treat positive patients. This sampling strategy has been operational since 17th August 2020. We have seen improvement in district indicators such as positivity rate which increased from 3% to 5.3%, positivity rate of triangulated areas.



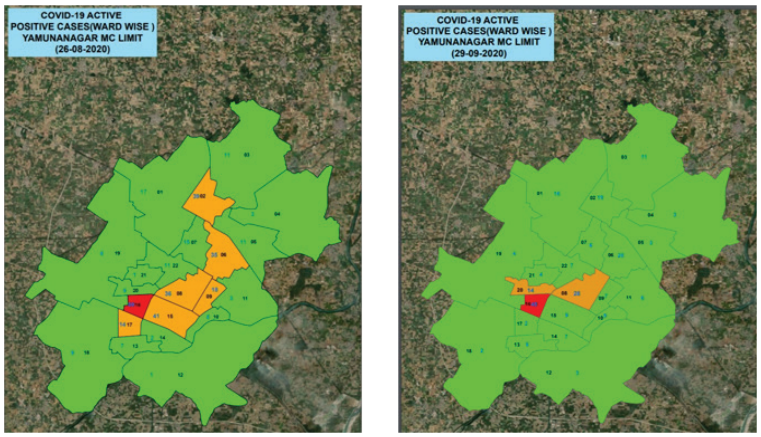


Fig 6: COVID-19 density maps for Yamunanagar district (a) 26-08-2020 and (b) 29-09-2020

After we identified the hotspot areas, aggressive TTT (Test, Treat and Trace) strategy was followed in these pockets and through data analysis we monitored the case positivity rate of these areas alone. We have been able to significantly reduce positivity rate in the hotspot areas over a span of 2 months, which can be seen in following figures. Areas such as Model Town went from 55 positive samples (in Aug) to 16 positive samples (in Sept) per 100 samples tested.

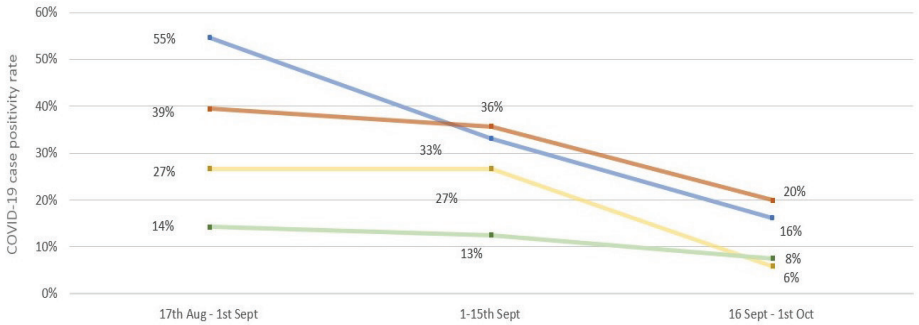


Fig 7: *Declining trend of positivity rate in urban hotspot areas identified in Yamunanagar district*

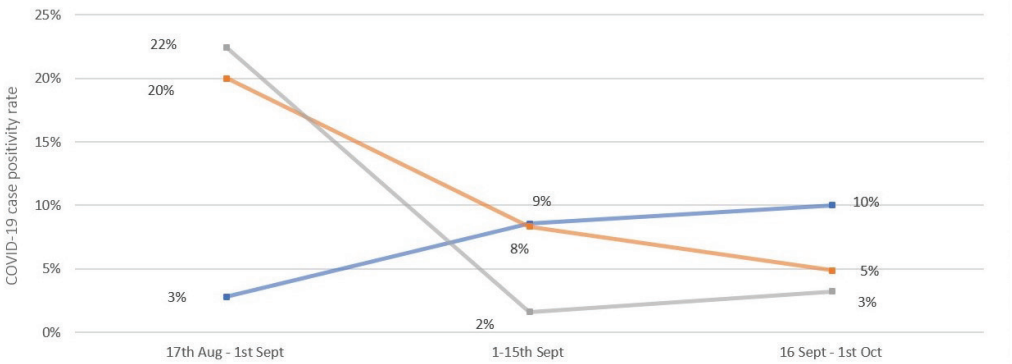


Fig 8: *In rural areas, hotspots were aggressively targeted bringing down the positivity rate by more than 10% in a month, while new areas such as Bakana were identified*

GURUGRAM

INCREASING THE AWARENESS AND FOOTFALL OF DONORS IN THE PLASMA BANK

GURUGRAM

INCREASING THE AWARENESS AND FOOTFALL OF DONORS IN THE PLASMA BANK

Problem Statement

Two weeks into the operationalisation of the bank, the footfall remained extremely low. While the number of recovered patients increased to 9,182, only 12 donated their plasma. Despite the high recovery rates, finding the right fit for plasma donation was a challenge. Moreover, people were reluctant to come out and donate their plasma after recovering from COVID. Simultaneously, the demand for plasma remained high due to its success in the treatment of moderately serious patients. This led to a mismatch in demand and supply of plasma, creating a gap which was not being met by the plasma bank. Despite having the capacity for collection and storage at the plasma bank, the turnout of covid recovered patients remained abysmal.

Solution Design

The two main issues identified for the low footfall was the lack of awareness about plasma donation amongst citizens of Gurugram and the lack of a standard operating procedure for its every day operations. Coordination between the plasma bank, civil hospital and Redcross and Lions Club were not streamlined, further impacting the poor footfall negatively. The District Administration roped in the CMGGAs to lay out an extensive plan to streamline operations and increase awareness among citizens about the benefits of plasma donation for COVID-19 patients. An action plan was prepared and discussed during a meeting with all the existing stakeholders was convened by the Chief Medical Officer. Clear action items were laid down and mapped to individual stakeholders. CMGGAs were given the responsibility to set up a smooth coordination between the Civil hospital, Rotary blood bank and the different NGOs helping out with sourcing of the donors. Drawing support from local radio, popular facebook

pages and famous celebrities like Yuvraj Singh, an awareness campaign on plasma donation (#KaroNaDonate) was planned and executed with the support of plasma donors and civil society organisations.

Implementation

A core team was formed, which was led by a Dy.CMO who was made the nodal point of contact for the plasma bank. The list of recovered patients was sourced from the Health Department, which was further filtered by the CMGGAs, based on some basic parameters to qualify for plasma donation. Strict protocols were put in place to ensure the confidentiality of the patients through a signed consent form from the calling volunteers. This list was then shared to the two external NGOs: Canwinn and Lions Club, for making calls and reaching out to potential donors. It was decided that a dedicated team of callers would reach out to covid positive patients to let them know about plasma donation, once they recover and covid recovered patients to encourage them to donate plasma.A calling script was created to ensure a standardised messaging is sent across to all potential donors. Daily calls made were tracked to see the percentage of recovered patients who were interested/disinterested. A google form for volunteering for plasma donation was created and shared on Facebook and Twitter with every social media post related to plasma donation. An FAQ was designed addressing all the possible questions that potential donors usually had, in both English and Hindi. Lots of posters and IEC material was created and shared across Whatsapp, Facebook, Twitter and newspapers. Influencers were roped in to spread the awareness and impact of plasma therapy. Appeals were made by the DC (DC appeal), CMO (Appeal Video), local celebrities and Yuvraj Singh. Gurgaon Community Circle (FB Live with CMO), BIG FM (interview with CMO) were leveraged to promote the plasma bank and plasma therapy. Weekly meetings chaired by CMO/Dy CMO to review the progress made and further strategise to scale up the operations. In order to make the process of plasma donation even more approachable, a provision of free pick up and drop facility was provided to all donors. They were also felicitated with a 'Corona Warrior' certificate and an award after their donation.

Results

270 donors have come forward and 538 units of plasma have been collected successfully.

Conclusion

In context of the COVID-crisis management activities in Haryana, mapping the various innovative practices deployed by the districts, we find that it is reflective of their ability to provide impactful solutions, directly and frequently communicate with people, and avoid any conflicting messaging. There have also been efforts to address all issues of physical provisioning, psychological support, motivating frontline workers, building civil society partnerships, and giving sufficient liberty for leadership at district levels to innovate and upscale successful innovations.

The remarkable work that district administration, along with CMGGAs, are doing in fighting this deadly virus and serving citizens at large is highly appreciable. It is also to acknowledge the NIC for their commendable work in bringing alive the technological interventions in different districts.

Abbreviations

CSR - Corporate social responsibility

CM - Chief Minister

PDS - *Public Distribution System*

HCF - Health Care Facilities

CHC - Community Health Centres

PHC - Primary Health Centres

QR code - Quick Response Code

SPO2 - Saturation of Peripheral Oxygen

BPL - Below Poverty Line

AAY - Antodya Anna Yojana

OPH - Other Priority Households

DFSC - District Food & Supplies Controller

DC - Deputy Commissioner

CCC - Covid Care Centre

DIO - District Informatics Officer

NIC - National Informatics Centre

DCHCs - Dedicated Covid Health Centres

DCH - Dedicated Covid Hospitals

IEC - Information, Education and Communication

MB - MegaByte

SRF - Specimen Referral *Form*

RMN - Registered Mobile Number

ICMR - Indian Council of Medical Research

RA and RT PCR - Rapid antigen and Reverse Transcription Polymerase Chain Reaction

UPHC - Urban Primary Health Centres

ANM - Auxiliary Nursing Midwifery

HRSAC - Haryana Space Application Centre

MoFHW - Ministry of Health and Family Welfare

TTT - Test, Treat and Trace

CMGGA
Chief Minister's
Good Governance Associates
for a progressive Haryana

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