BEST PRACTICE BY STATE FOR COVID-19 MANAGEMENT AND MITIGATION

"A UNIFIED COVID DATA PLATFORM FOR UTTAR PRADESH"

This document summarizes the Government of Uttar Pradesh's response to COVID-19 as a single unit by developing and leveraging a unified CoVID Data Platform - a single source of truth. The UP-State Leadership (Chief Minister's Office, Dept. of Health and Dept. of ME) has promptly taken significant steps to address this unprecedented and constantly evolving health crises, while unequivocally extending unified data support in these extraordinary circumstances in leveraging digital tools across the continuum of care.

1- DESCRIPTION OF THE INTERVENTION/PRACTICE:

Over 220 million people reside in the state of Uttar Pradesh, with an expected 30 million migrant workers making their way into the state due to CoVID. While the initial focus of GoUP was on foreign travellers and ensuring they are screened, tested and quarantined to limit the spread – that was followed by lockdown phases, wherein focused efforts were made to create awareness, rigorously track, (screen, isolate) test and treat. While numerous facilities were designated as COVID only facilities, it was also extremely crucial in the context of Uttar Pradesh for the two Departments i.e. Department of Health and Family Welfare (Dept. of Health) and Department of Medical Education and Training (Dept. of ME) to jointly own the various response initiatives being undertaken in the state.

The Team led by the Hon'ble CM, Principal Secretary, Health and Medical Education spent considerable time discussing aspects and developing protocols around physical quarantine, home quarantine, process for handling of positive cases, customizing testing guidelines in the context of UP and more recently now, home quarantine for domestic air travellers. There are more than 120 Govt. and private labs on-boarded as per the guidelines) and 700 plus COVID facilities (L1, L2, L3, DH-I, L1-CCC, L2-Pvt) with 1 lakh plus bed capacity. Of these, laboratories and 42 L2 facilities are under the preview of Dept. of ME and all other facilities, surveillance responsibility are under the preview of Dept. of Health.

Within the existing constraints, the State Departments of Uttar Pradesh, with the support from the Chief Minister's office, had to overnight work with partner organizations to develop a holistic response to the COVID-19 pandemic. This included:

- Identification and mitigation of Health infrastructure gaps
- Evolving a health emergency unified response strategy
- Coordination requirements across different departments like Health & Family Welfare and Medical Education &Training
- Changing role of health care facilities and healthcare providers in the face of a pandemic
- Development of systems to monitor, track and respond in near real time during the constantly changing situation.

COVID-19 posed a number of unforeseen challenges, it was even more challenging and extremely critical for the Government to ensure availability of accurate data effective action and communication.

Delivering on immediate needs

During the initial 2 weeks from Mid-March to end of March 2020 the following initiatives were taken:-

- *Setting up of a full-fledged Call Center – Control Room*, with a COVID protocol-based software; 30 dedicated operators answering to citizens queries, with average of 1500 calls on a daily

basis. Based on the customised software, callers were categorised into different priorities and data forwarded to field teams to follow-up.

- *To support teleconsultation services*, four doctors were also placed from within the State Department; the Call Center was soon after integrated with the CM Helpline to ensure excess capacity, with a common CoVID protocol.
- Developed and launched a dedicated official *web page for the Government for sharing all COVID-19* information and updates from GoUP
- *Developed a Self-Quarantine App* for the citizens. The app was released in the last week of March and was shared with travellers over SMS.
- Developed and launched a *website for IEC and training materials* for doctors, nurses, ANMs, and sharing relevant web links via SMS. Given the lockdown and social distancing rules, it was essential to ensure timely training is extended to healthcare providers on the continuously changing COVID-19 related clinical and operational guidelines, while also being able to track the training completion rate
- *Development of Unified CoVID Data Platform for UP*. An end-to-end integrated system was developed across the lifecycle of *Track-Test and Treat.*

Unified CoVID Data Platform for UP

The requirement to have an end-to-end digital solution, enabled to track and handle unitised data was need of the hour. The Unified CoVID Data Platform for Up evolved over 2 months of extensive efforts.

Guiding Principles

- Timely action is taken to ensure timely screening and prompt clinical assistance
- Absolute transparency and accountability across the value chain
- Single source of truth available across the entire state for case tracking

Key Features (work-flow depicted in ***Figure 1):***

- A **Layered Architecture** – Surveillance Platform -> Decision Making Dashboard with Advanced analytics on **contact tracing data** for identifying spread patterns, super-spreaders, and clusters of high infection
- Ensure ***Modularity*** across different user groups and services and the associated views, with UI and services not coupled to increase functionality at scale
- Develop an ***intuitive*** design based on the regular ***workflow*** of the user, to enable them with tool that helps save time given their daily workload

- Single point of case registration from State-District Helpline, GoI Database, State-specific data, Labs, Tracking Teams and Citizen's Self Quarantine App
- Unique Case ID assigned for case management across the system.
- Ability to drive bulk allocation of cases to Tracking Teams.
- In-person verification of newly registered cases, daily follow-up and contact tracing on the field.

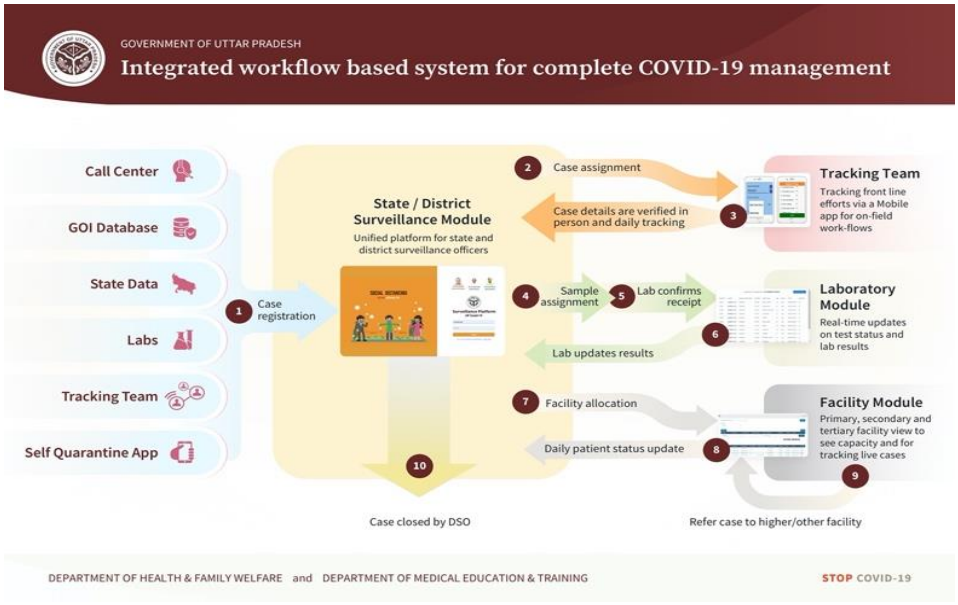


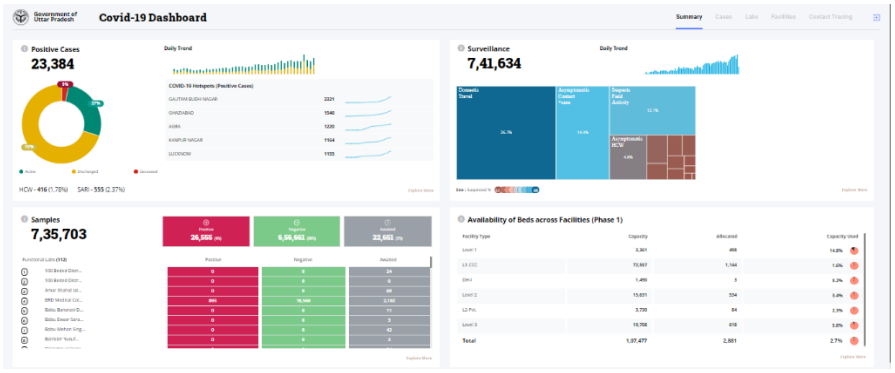
Figure 1: Integrated Workflow for the Unified Data Platform

- Ability to assign bulk cases for testing through consignment-id and bulk upload results at the lab - results updated real-time at Facility/District level
- Flexibility provided to the district officer to assign any facility
- Post case allocation, one-time medical record updation by Nodal officer at the facility. Daily updation of epidemiology data within the facility.
- Seamless inter-facility referral facilitated
- District officer assigned with the responsibility of handling (e.g. case closure) post-discharge management.
- Outcome assigned to each case at the end of cycle.

Decision-Making Dashboard

The **Decision-Making Dashboard** leverages visualization for advanced analytics and contact tracing in UP.

- Dynamic modelling to predict patterns and outliers
- Heat Maps for risk detection to drive focused efforts
- COVID Carrier Surveillance for real-time monitoring
- An additional deep-dive analysis is also being planned using age, gender, case type details, co-morbidity conditions, etc.



Snapshot of Decision Making Dashboard

2- IMPACT CREATED:

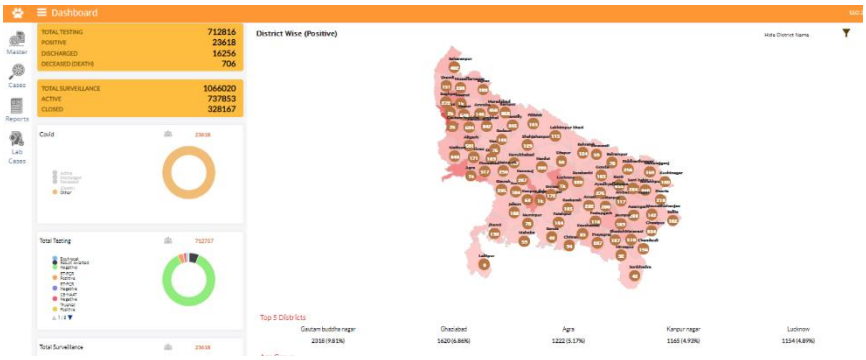
- As on 30th June 2020 the platform has tracked 10 lakh suspected cases. 7 lakh tests have been carried out by labs across the State with different test kits i.e. RTPCR, CBNAAT, TRUENAT and AntiGen. The entire record being available in digital form enables case tracking, analysis of resource utilisation and planning.
- **Effective Management of cases by** Leverage the platform as a ***Single source of truth*** for the entire State – for T3 – **Track, Test and Treat.**
- Engage all **stakeholders digitally** – Officials, surveillance teams, facilities, Labs (public and private). The impact on various stakeholders as part of the overall ecosystem is elaborated below:

A. **Policy and Decision-Makers *(Decision-Making Dashboard)***

- ✓ Single source of truth for all data and analytics needs across stakeholder groups
- ✓ Near real time availability of information at all decision making levels
- ✓ Integrated dashboard for swift decision making

B. **State/District Surveillance Teams *(Surveillance Platform, Lab Module, Facility Module)***

- ✓ Singular point of case registration with end-to-end case management and post- discharge case follow-up
- ✓ Integration of multiple data sources (lab, facility, field, citizens, call center)



Snapshot of Unified Data Platform

C. **Lab Team *(Surveillance Platform, Lab Module, Facility Module)***

- ✓ System generated real-time receipt and status updates for samples and consignments
- ✓ Ability to bulk upload results at the lab - updated real-time at District/Facility/Field team level

D. **Facility Team *(Surveillance Platform, Lab Module, Facility Module)***

- ✓ Medical and epidemiology record maintained against the unique case ID across the case life cycle
- ✓ Seamless inter-facility referral
- ✓ Integrated with real-time updates to/from State/District and Lab teams

E. **Field Team *(Case Tracking Application; Surveillance Platform)***

- ✓ In-person verification and daily follow-up of each registered case
- ✓ Contact tracing on the field
- ✓ Collaboration with all field teams, facility, lab, and state/ district teams

F. **State Residents *(Self Quarantine App, Call Center)***

- ✓ Direct beneficiary engagement through advisory messages for registered users
- ✓ Geo-fencing, movement alert
- ✓ Self-assessment, tracking and helpline support
- ✓ Daily follow-up of effected cases

3-ACHIEVEMENT:

- **Synergised Leadership**
  There has always been a doubt on implementing technology solutions across large states especially UP and there are not many success stories. The joint-manship demonstrated at the leadership level has brought in a paradigm shift in the State's outlook to handle large-scale challenges by leveraging technology.

- **Track-Test-Treat in real time through a single platform**
  - UP as on 30th June 2020 has 23000 plus positive cases, out of these 6650 are active and are admitted in various facilities across the State. All these cases are being monitored on a daily basis through the platform with complete transparency.
  - In addition the State is tracking 7 lakh plus potential cases across districts on a daily basis.
  - The Labs across the State have conducted 7 Lakh plus tests, results for each of these is available and trackable.
- **Leveraging and finding value in technology for efficient time management in crisis**
  - The various parts of the platform were introduced in an easy to consume, modularized manner. This helped establish a comprehensive reporting process across the continuum of care for COVID-19.
  - The ability to review real-time updates in a consolidated manner, helped the State to prioritize key issues, instead of focusing efforts on operational activities and helped them support key efforts more effectively.
  - The state has achieved a Paperless reporting mechanism
- **Seamless working across departments and institutions**
  - Use of technology and a single digital platform has ensured seamless working on CoVID between the Dept. of Health and Dept. of Medical Education.
  - Hospitals, labs private and public surveillance and the administrative machinery across the State is able to work on CoVID in an integrated manner

- **Building capacity by adopting new modes of training**
  Whether it was training in small groups or the advent of remote training via different mediums, had effective training not been undertaken and new approaches to train would have not been used. This includes:
  - *Challenging the status quo around the frequency and need for physical training:* Challenging the current approach to training, for instance, the day-long training that is undertaken to train staff on new technology, or the repeated trainings undertaken, or using in a Training of Trainer model - all this was replaced by short Zoom training sessions. This might still be a challenge from a skill set training perspective, but was extremely helpful for knowledge sharing and disseminating information around

continuously changing guidelines as well as live demonstrations around the use of the platform.

- *Learning at one's own pace and comfort*: Short videos of 1 to 2 minutes were created by breaking the work flows into sub categories and tasks for the field teams. This ensured quick adoption and uptake. Whatts app was used for dessimination of these videos, thus enabling learning on the move.
- *Refresher training*: the ability to refresh one's memory by actually referring to training material as a visual aid, while at work (e.g. leveraging easy to use and view short videos posted on youtube)