

An Integrated Disease Surveillance and Response tool for pandemics

About the partnership

We are pleased to announce a collaboration between Oxford Policy Management and SurveyAuto to assist policy makers make evidence based decisions to contain the spread of covid-19 – and other diseases –based on an electronic Integrated Disease Surveillance and Response (e-IDSR) platform. Our partnership brings together global public health specialists and leading experts and pioneers in technology to provide whole package solutions for country response.

Oxford Policy Management

Committed to helping low- and middle-income countries achieve growth and reduce poverty and disadvantage through public policy reform. We work in all areas of social and economic policy and governance, including health, finance, education, climate change, and public sector management. We draw on the cross-cutting expertise of our dedicated teams in data analysis and visualisation, monitoring and evaluation, political economy analysis, statistics, and research methods. With over 40 years' experience and over 400 staff across a global network of offices, we work across the policy cycle to deliver projects that deliver real and lasting change.

SurveyAuto

A leading Big Data company, which works globally on using cutting-edge Artificial Intelligence and machine learning technologies to produce actionable insights for large-scale decision-making systems. SurveyAuto's decision-making systems are used by governments, donors, telecom operators, and Fast-Moving Consumer Good (FMCG) companies worldwide. SurveyAuto's data collection and analysis platforms are used for monitoring cash transfer programs, family planning programs, monitoring of healthcare facilities, access to primary education, and disease surveillance and monitoring in several countries across Asia and Africa. SurveyAuto received an innovation award from the Bill and Melinda Gates Foundation in 2019 for improving access to family planning services in Pakistan.

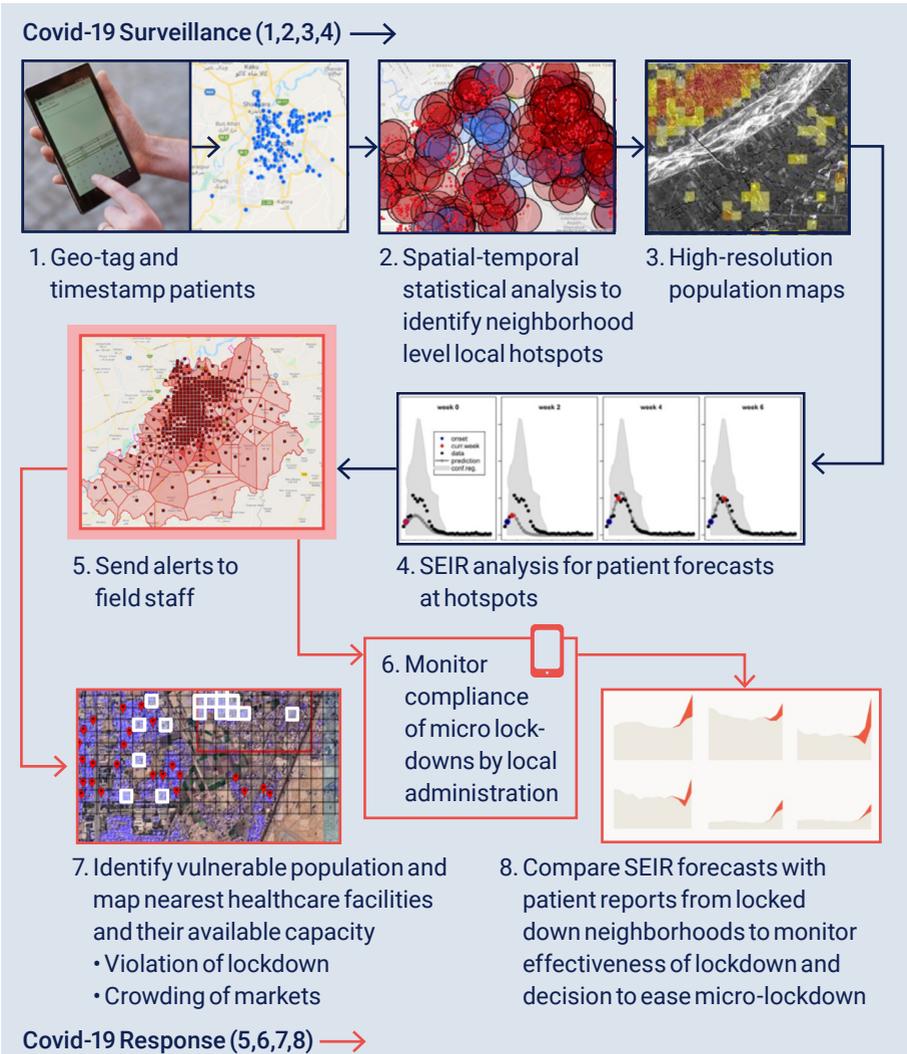
OPM and SurveyAuto's collaboration provides an advanced **electronic Integrated Disease Surveillance and Response (e-IDSR) platform**, combining recent advances in machine learning with smartphone applications to collect high-quality data from the field.

Through an easily accessible platform, the e-IDSR can:

- Pinpoint and visualise hotspots of a disease outbreak before it develops into an epidemic
- Forecast patient numbers at sub-city granularity up to two weeks in advance
- Generate alerts to coordinate

- micro-lockdowns with local authorities
- Produce highly accurate multi-layer maps through machine learning analysis and satellite imagery
- Assesses the impact of different mitigation and lockdown strategies
- Link identified or forecasted needs (e.g. beds, ventilators) with available resources

Figure 1: e-IDSR in action



How can the SurveyAuto e-IDSR be used?

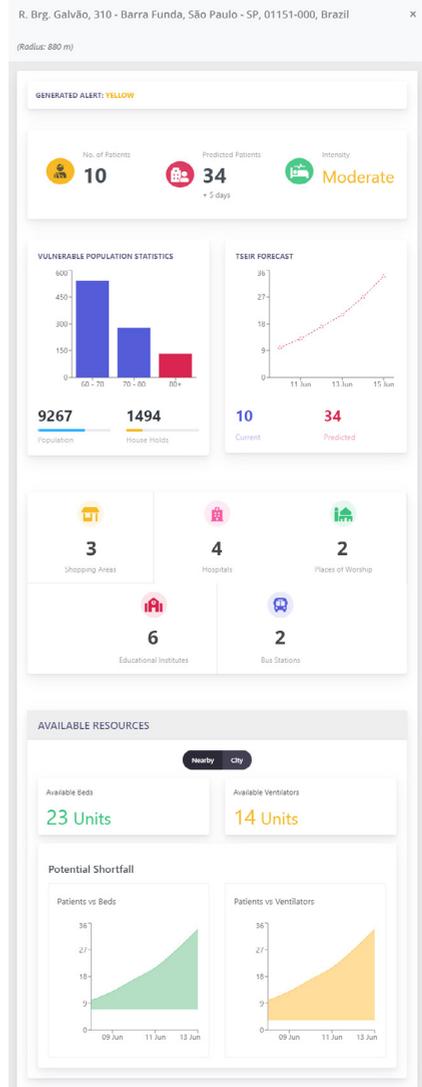
The SurveyAuto e-IDSR is designed to enable policy makers and public health officials make informed decisions around their covid-19 response by:

Automatically identify emerging covid-19 hotspots: Our e-IDSR can identify emerging hotspots of a disease outbreak 10-14 days before it peaks. The use of our technology enables users to flag those disease clusters which show a sudden and unusual rise in cases. It automatically adjusts for seasonal, geographic, and population variances, enabling policy makers and public health officials to focus only on emerging hotspots.

Forecasting trajectory of covid-19: The e-IDSR uses epidemiological modelling to forecast the trajectory of covid-19 patients, 10-14 days in advance. The model can incorporate different scenarios and assess the impact of different containment strategies, therapeutic treatments, as well as mass vaccinations. As part of each emerging hotspot or cluster, the e-IDSR interface shows the forecast, intensity, and extent of the outbreak.

Figure 2:

The tool displays the number of current patients, number of predicted patients, and severity of the alert based on the surge of patients in the hotspots. This screen also shows public gathering places within the identified hotspot which may be contributing to the spread of the disease, as well as mapping predicted patients to medical facilities to highlight any shortfalls due to the predicted outbreak.



Covid-19 resource planning: For each disease hotspot, the e-IDSR resource planning platform maps critical healthcare facilities of nearby hospitals, including beds, ventilators, and healthcare staff and automatically highlights potential shortfalls based on patient forecasts.

Covid-19 response monitoring: The e-IDSR can monitor data reported by local field teams. Alerts generated by the platform are sent to the local authorities and field teams using dashboards and smartphone apps. Field teams and policy

makers can use the platform to monitor containment activities performed in response to an issued alert.

Contact tracing: The e-IDSR integrates contact tracing data from a Bluetooth-enabled sister app, and enables policy makers and local teams to trace and track exposed contacts, including:

1. The number of people exposed to the patient
2. Number of contacts traced
3. Number of tested positive cases
4. Number of isolated patients

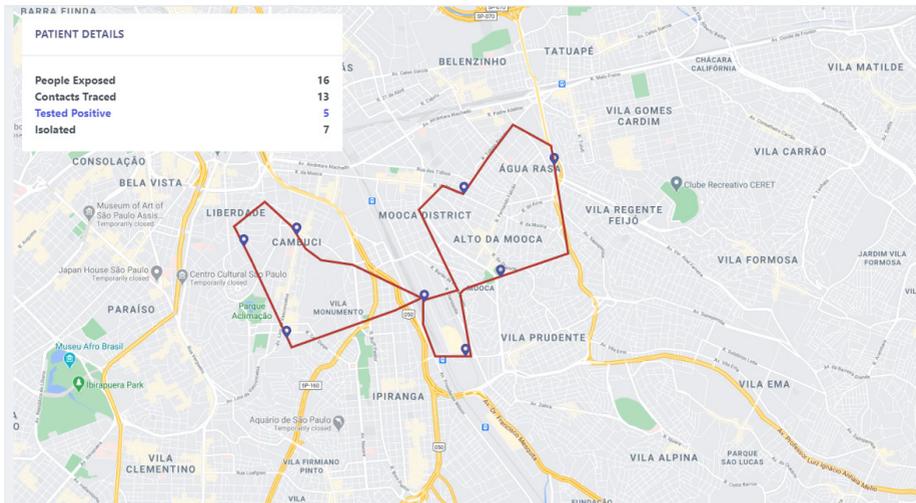


Figure 3:

Contacting tracing data of a patient and places visited by the patient to prioritise testing and quarantining

Where can the e-IDSR be used?

Covid-19 is a classic example of a local outbreak of a disease which, when not contained in time, developed into a global pandemic. Unfortunately, many countries lack real-time disease surveillance and response systems to enable timely detection of disease outbreaks and mitigation.

Many countries still suffer from regular outbreaks of infectious disease like Measles, water-borne diseases such as Diarrhea and Typhoid, and vector-based

diseases such as Malaria, Dengue, and Zika. The e-IDRS helps pinpoint the outbreak and enables mitigation measures to be taken immediately and ensures there are adequate health facilities and medical staff in the effected area. Tens of millions of dollars can be saved with timely interventions using e-IDRS before a small outbreak becomes a national epidemic.

Further information and contact

To discuss further, please contact HEARTforEACDS@opml.co.uk

www.opml.co.uk/work-with-us/teams/health-and-nutrition

surveyauto.com

