PUBLIC HEALTH SURVEILLANCE IN INDIA

A white paper on Vision 2035 Public Health Surveillance in India is published by Health Vertical, NITI Aayog, and Institute for Global Public Health, University of Manitoba, Canada, and technical experts.

Scope: This paper describes the progress made by India in Public Health Disease Surveillance, builds further upon the existing experience, and focuses on governance based on cooperative federalism and a bottoms-up approach aligning itself with the National Health Policy 2017 and inclusive and sustainable growth.

Meaning of Health Surveillance: According to the World Health Organization (WHO), Public Health Surveillance (also epidemiological surveillance, clinical surveillance or syndromic surveillance) is “the continuous, systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice.” Public health surveillance may be used to track emerging health-related issues at an early stage and find active solutions in a timely manner.

1992
HIV Sentinel Surveillance (HSS) was perhaps one of the first nation-wide disease surveillance programs which began in 1992 and were scaled up country-wide a decade later.

1995
Cholera outbreak in Delhi in 1988 and a plague outbreak in Surat in 1994 prompted the Government of India (GoI) to constitute a National Apical Advisory Committee (NAAC) in 1995.

1997
National Surveillance Program for Communicable Diseases was launched.

2004
World Bank funded the GoI in 2004 for a ten year ‘Integrated Disease Surveillance Project – IDSP’. This was later converted into a program and funded under the 12th plan (2012-17) within the National Health Mission.

2012
TB was made a notifiable disease, with the Nikshay platform serving as a source of data to track the disease.

2019
World Health Organisation (WHO) in partnership with the GoI launched the Integrated Health Information Platform (IHIP) within the IDSP program, which is a digital web-based open platform that captures individualized data in real-time, and generates weekly and monthly reports of epidemic outbreaks.

2020
ICMR has a network of 106 Viral Research and Diagnostic Laboratories (VRDL), 35 diagnostic centers, and many apex institutions, which have identified pathogens causing infections.
The vast network of 150,000 Health and Wellness Centres (HWC) can help New cadre of Community Health Officers and Front-line workers.

Lack of collated data on AMR makes it difficult to

While many questions related to the involvement of the private sector in

Media sources can be used to promote disease prevention and containment

New infections, pathogens and diseases with more drug-resistant or

Programs such as National AIDS Control Program, National TB

As per Ministry of Health document- 'India – Health of Nation’s states'

This is rapidly developing and with hand-held devices, PoC

Surveillance network can be used for identifying

Limitation on geographical coverage in certain states.

The Clinical Establishments Act is already enacted and many states use

India’s National Action Plan on AMR (NAP-AMR) 2017

It is already functional across several states and can be scaled up further

Point of Care (PoC) Diagnostics and Screening

This is rapidly developing and with hand-held devices, PoC testing can reach the underserved population in a timely and facilitative manner.

Indian Council for Medical Research (ICMR), the NCDC and Central and State Governments have enhanced their abilities to respond to ‘Public Health Emergencies of International Concern’.

The IHIP is not fully operational in India

Surveillance functions in vertical siloes of programs and institutions:

Programs, such as National AIDS Control Program, National TB Elimination Program, Reproductive and Child Health (RCH) have achieved success in disease tracking, coverage, health status, outcomes but they are not fully integrated on a unified surveillance platform.

There has been limited research or use of data systems for program/policy questions with no mechanism for sharing or unified use of health data.

Systematic quality control under surveillance has not been achieved.

There is the limited ability of program implementation structures to work in synchrony with research organizations and vice versa, with many organizations not fully included in health surveillance.

The private sector, which is a homogenous entity involving unregistered practitioners, stand-alone clinics, pharmacies and laboratories, etc. has minimal participation in disease surveillance.

Maternal, neonatal and child death surveillance and linking of mortality with morbidity reports are not yet fully integrated, including on IHIP.

Social and administrative barriers often lead to under-reporting of deaths, even within the facilities.

Health being a State subject, the recruitment of human resources for health care for state and district level surveillance units has been devolved to states, who have not addressed it adequately.

India lacks sufficient Public Health experts with this expertise in public health, epidemiology, unlike the USA or Canada.

Limited use of digital, social, and print media in surveillance and non-communicable disease surveillance and occupational Health Surveillance.
1. Raise the profile of PHS
   - PHS is not a standalone activity unrelated to healthcare service delivery and therefore its profile must be enhanced to be viewed as tool for public good. This requires information availability to multiple stakeholders, including the citizen and the political and bureaucratic leadership at the central, state and district level, governance structures working together (Figure).

2. Create/Strengthen independent Health Informatics Institute
   - Public health informatics has an essential role in data collection, collation, analysis and transmission for public health surveillance and related actions. A dedicated health informatics institute will support and guide innovations and analytic activities.

3. Define the scope of surveillance into broad categories of diseases/conditions, keep it simple and strategic
   - This will require creation of nodal structures for different diseases but with facility of interoperability. This will strengthen accountability mechanism.
   - Response protocols and mechanisms for event-based surveillance especially for Public Health Emergencies of International Concern, may also be strengthened.

4. Use a WHO STEP wise approach to include NCD Surveillance
   - Surveillance for NCD has been fragmented. WHO’s STEPwise approach can be implemented with Health and Wellness Centres under Ayushman Bharat.

5. Prioritise Diseases/Conditions that will be the focus for Surveillance/Disease Elimination
   - India can use multiple criteria, based on available information to prioritise diseases and conditions based on state-specific contexts and create a list of diseases to be eliminated by 2030.

6. Improve Core Support Functions and System Attributes
   - This includes health system support, workforce support and technological support, with focus on attributes such as simplicity, flexibility, timeliness, completeness, consistency, representativeness, acceptability, positive predictive value.

7. Streamline data sharing, analysis, dissemination and use for action
   - The UHID will link syndromic, presumptive and lab records as well as morbidity and mortality data- which will facilitate better surveillance. Aadhar can be a basis for implementing UHID.

8. Encourage Innovations
   - It would be necessary to identify opportunities for implementation of innovations within districts/states to learn from and then ensure successful scale up and integration into the Public Health system.
   - This includes new collection techniques, new case definitions or new risk factors/groups, new point of care diagnostics and screening tools/devices, new analytical tools, new dissemination techniques, new stakeholders, new evidence/research findings.

9. Align with Ayushman Bharat
   - The HWCs can strengthen community-based health surveillance and PMJAY scheme and private and public insurance sector insurance schemes can also be amalgamated.

10. Strengthen laboratory infrastructure and referral networks
    - Quality, affordable diagnostics is critical for PHS and it needs to improve at primary health care centres, block level labs. Private institutions can be engaged in a collaborative framework.

Conclusion:
- India’s Vision 2035 for Public Health Surveillance envisions integration within the three-tiered health system, strengthened community based surveillance, expanded referral networks and enhanced laboratory capacity.
- The EHR becomes the main basis of surveillance and is complemented by periodic national/state/district level surveys, special studies and research in order to reconcile the threshold and redefine standard definitions of cases, as disease patterns evolve.
- Surveillance is not solely dependent on individual disease driven active or passive surveillance systems, though these may remain important contributors to surveillance information.
- The building blocks for this vision are an interdependent federated system of Governance between Centre and States, new data sharing that is not dependent on traditional systems of data entry, but one that is positioned over and above existing disease surveillance programs.
- Surveillance uses new analytics, health informatics and data science and innovative ways of disseminating ‘information for action’. This will further thrust India to be a global/regional leader in Public Health Surveillance.