

Key Achievements

a.) Nationwide Expansion and Infrastructure Development

- Established 165 Viral Research & Diagnostic Laboratories (VRDLs) across India, including:
 - 11 Regional Laboratories equipped with BSL-3 infrastructure
 - 27 State-level Laboratories
 - 127 Medical College-level Laboratories
- Spread across 26 States and 5 Union Territories, forming a robust three-tiered diagnostic structure from medical to regional level.
- Enabled nationwide coverage for timely viral diagnosis, outbreak response, and data generation to support public-health action.

b.) Role in Pandemic Preparedness and COVID-19 Response

- Served as the backbone of India's testing strategy during the COVID-19 pandemic.
- Expanded national RT-PCR testing capacity from 1 to 3,300 laboratories within 18 months.
- Validated 1,700 diagnostic commodities, supporting Atmanirbhar Bharat through approval of 78% indigenous diagnostics.
- Facilitated Covaxin clinical trials, validated innovative technologies (e.g., TrueNat platform), and established genomic sequencing in 54 VRDLs for SARS-CoV-2 surveillance.
- Reduced the cost of COVID-19 test kits from ₹1,500 to ₹55, ensuring affordable nationwide testing.

c.) Outbreak Investigation and Containment

- Actively contributed to the detection and control of high-priority viral threats:
 - Monkeypox (Mpox): 36 VRDLs mobilized nationwide for rapid detection and diagnosis.

- Nipah Virus: Containment led by VRDL, Government Medical College, Malappuram, Kerala (2024 outbreak).
- Avian Influenza (H5N1, H9N2) detected by VRDLs at AIIMS Mangalagiri and ICMR-NIRBI Kolkata.
- Zika Virus, KFD, and CCHF surveillance strengthened in endemic regions.
- Provided real-time coordination with IDSP and State Health Departments to ensure rapid containment.

d.) Surveillance, Diagnostic Efficiency, and Global Collaborations

- Reduced diagnostic turnaround from 7 days to 24–48 hours.
- Established surveillance networks for ILI/SARI, AES, Acute Febrile, and Diarrheal Syndromes.
- Integrated VRDLN portal with IHIP, enabling real-time automated data sharing nationwide (since January 2025).
- 17 VRDLs accredited by WHO under the Global Measles Rubella Laboratory Network.
- Over 50 VRDLs equipped with Next-Generation Sequencing (NGS) platforms, contributing genomic data to WHO FluNet.
- Initiated One Health-based research addressing zoonotic and vector-borne threats.

e.) Research and Publications

- Over 750 multi-centric research projects completed or ongoing across the network.
- More than 1,500 publications in high-impact international journals such as *The Lancet*, *Lancet Microbiology*, and *Journal of Medical Virology*.
- Focus areas include viral genomics, pathogenesis, zoonotic spillovers, and diagnostic innovation.

f.) Diagnostic Innovations and Validation

- 35 VRDLs served as national validation centres for diagnostic kits and viral transport media.
- Supported validation of 1,700 COVID-19 diagnostics (800 approved).
- Introduced pooled-sample testing strategy and TrueNat validation for field deployment.
- 43 VRDLs identified for strengthening as Medical Device & Diagnostic Testing Laboratories (MDDTLs).

- 10 VRDLs upgraded to Infectious Disease Research & Diagnostic Laboratories (IRDLs) functioning as regional referral centres.

g.) Quality Assurance and Laboratory Excellence

- Maintained 100% accuracy and reliability through rigorous quality-assurance systems.
- 13 VRDLs, with ICMR-NIV Pune as Resource Centre, developed Proficiency Testing (PT) panels for infectious-disease analytes.
- Bi-annual External Quality Assurance Studies (EQAS) conducted by ICMR-NIV Pune ensure uniform national diagnostic standards.
- Established a nationwide External Quality Assurance (EQA) framework aligned with global WHO and CDC benchmarks.

h.) Training and Capacity Building

- Trained over 10,000 health professionals—including clinicians, microbiologists, scientists, and technicians—in:
 - Molecular diagnostics
 - Biosafety and biosecurity
 - Quality-management systems
 - Outbreak investigation protocols
 - Resource Centres at ICMR-NIV Pune and ICMR-NIE Chennai conduct regular hands-on workshops.
 - Provided rapid training during COVID-19 and Mpox outbreaks, extending expertise to SEAR countries.
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