



Press Release

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Note on COVID-19 Laboratory Preparedness in India

Background

WHO declared an outbreak of febrile respiratory illness of unknown etiology in December 2019 from Wuhan, Hubei province of China. The outbreak has been epidemiologically linked to the Huanan Seafood Wholesale Market involving sale of sea food and live animals. Subsequently the etiological agent was found to be a novel coronavirus which was isolated from the bronchoalveolar lavage of three infected individuals.

Since its emergence, the disease has rapidly spread to neighboring provinces of China as well 72 other countries mainly through International travel.

Infection is spread through droplets of an infected patient generated by coughing and sneezing or through prolonged contact with infected patients.

Virus has been named as SARS-CoV-2 due to its relatedness to the earlier SARS-CoV (2002-03). The WHO has named the disease as COVID-19 and ICTV has named the virus as SARS-CoV-2. Due to the fast spread of virus to neighboring countries, it became critical for all countries to expedite setting up diagnostics for this new virus. Diagnosis helps in early identification of the disease and containment of the disease.

Inclusion criteria for testing for COVID-19

Following people should be considered for COVID-19 testing-

1. Symptomatic (fever, sore throat, running nose, dyspnea, etc) individuals returned from affected countries (China, Hong Kong, Japan, South Korea, Singapore, Iran, Italy etc.)
2. Close contacts of confirmed positive cases of COVID-19 infection.
3. All individuals evacuated and quarantined from Wuhan, China and Diamond Princess ship, Japan

Types of samples: Throat swabs and Nasal swabs

(Samples to be referred to the testing laboratories by designated Government health authorities and Integrated Disease Surveillance Program (IDSP))

Laboratory Preparedness:

Role of ICMR in establishing diagnosis of COVID-19:

ICMR-National Institute of Virology (NIV), Pune functions as the resource centre for the VRDL network and is responsible for providing technical training for performing molecular

and serological assays for virological diagnosis. NIV, Pune also performs the important task of standardizing assay procedures for the network as well as quality control and quality assurance activities.

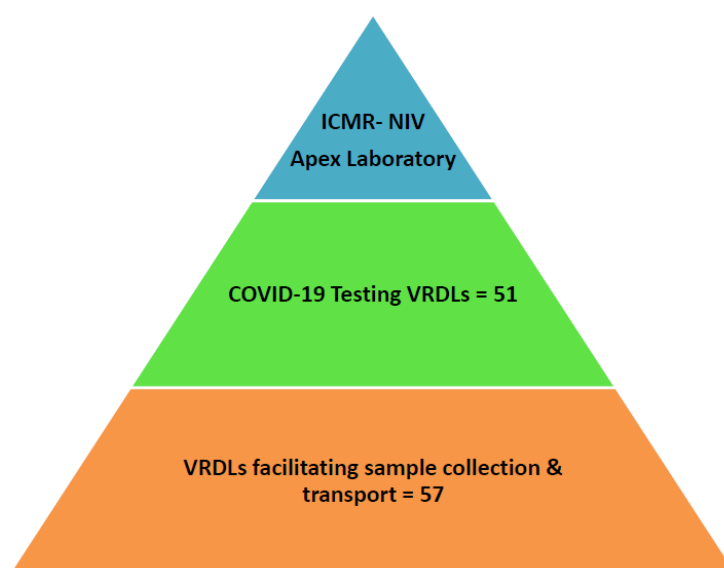
In the preparedness for the COVID-19 outbreak in India, NIV Pune served as the apex laboratory to optimize the conventional and real-time PCR assays targeting different genomic regions of SARS-CoV-2 and initiate testing of suspected cases. All the laboratories were supplied with the primers, probes, PCR reagents, positive and negative controls, and standard operating procedure (SOP) for the Real Time PCR assay by NIV, Pune. Further, NIV also undertook quality control activities. NIV also maintains an inventory of reagents for itself and testing labs. Currently, NIV has sufficient reagents for facilitating testing in the entire network.

Expansion of testing capabilities and selection of testing laboratories for SARS-CoV-2:

The Department of Health Research (DHR) / Indian Council of Medical Research (ICMR) initiated establishment of a network of public health laboratories to enhance capacity for diagnosis and detection of viruses of public health importance in the Indian setting in the year 2013. Over the years this network has expanded and currently a total of 106 Virus Research & Diagnostic Laboratories (VRDLs) have been established throughout the country. Detection of viral pathogens using serological methods and molecular diagnostic tools is the major focus of the VRDLs.

Following the increase in load of screening samples from suspected cases with symptoms and travel history to the affected countries, DHR/ICMR has commissioned 51 laboratories for COVID-19 testing in India (Figure 1). In addition, NCDC Delhi is also engaged in testing. (Total = 57 laboratories) All these laboratories have an operational Real-Time PCR platform.

Additionally, 56 DHR/ICMR VRDLs and 1 facility at Leh have been designated to facilitate sample collection through Government health authorities. Their role is to provide collection material (swabs & viral transport media) and facilitate transport of samples to the nearest testing laboratory. Distribution of these labs is shown in Figure 2.



Laboratory Testing Organogram

Number of tests conducted by the laboratories:

As on March 6, 2020, a total of **4058 samples from 3404 individuals** have been tested by the network. This includes testing of 1308 samples from 654 individuals evacuated from Wuhan, China and quarantined at ITBP and Manesar Camp and tested twice on days 0 and 14. Subsequently another 236 individuals evacuated from Wuhan and Diamond Princess Ship, Japan on 27th February 2020 were tested on day 0. Repeat testing will be done on day 14. Detailed list of laboratories is placed at Annexures 1 & 2 respectively.

About ICMR: ICMR is the apex body in India for the formulation, coordination and promotion of biomedical research, is one of the oldest medical research bodies in the world. ICMR's research agenda align with the National health priorities. These efforts are undertaken with a view to reduce the total burden of disease and to promote health and well-being of the population. ICMR promotes biomedical research in the country through intramural as well as extramural research. Visit us at <http://icmr.gov.in>

For more details:

Subject Specific

Dr Nivedita Gupta, Scientist F

Email: guptanivedita.hq@icmr.gov.in

Phone: +91-11-26589397

Media Coordinator

Dr Lokesh Sharma, Scientist E

Email: Sharma.lk@icmr.gov.in

Mobile: 7567311014

Figure 1: COVID-19 testing laboratories

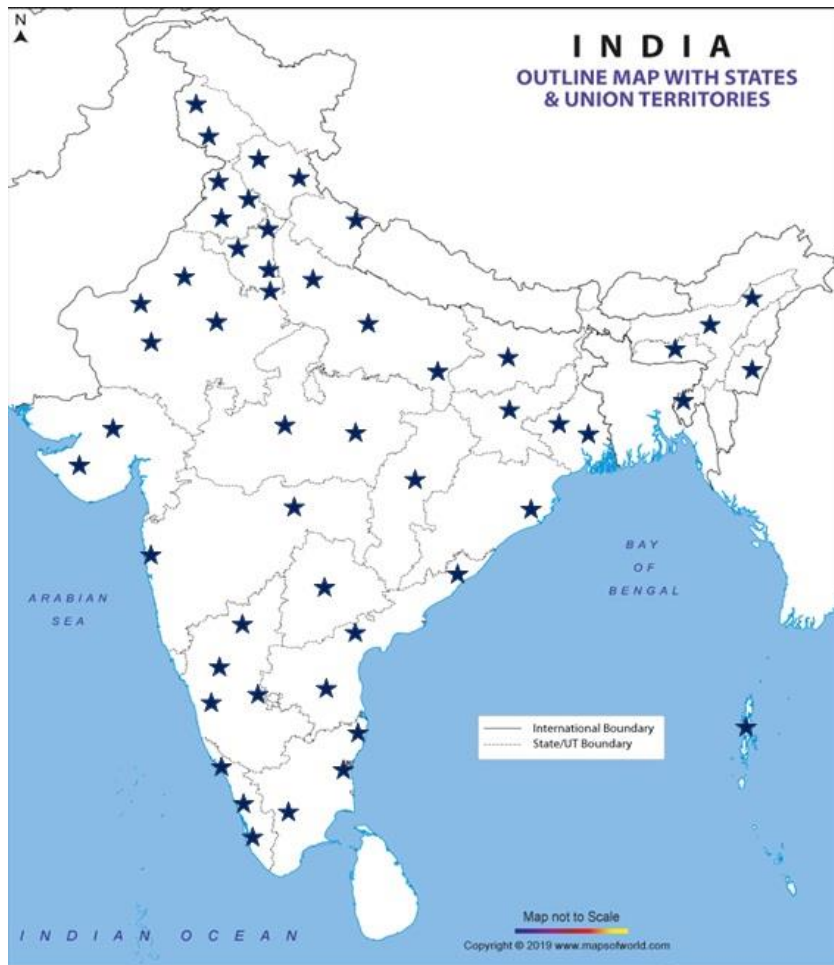
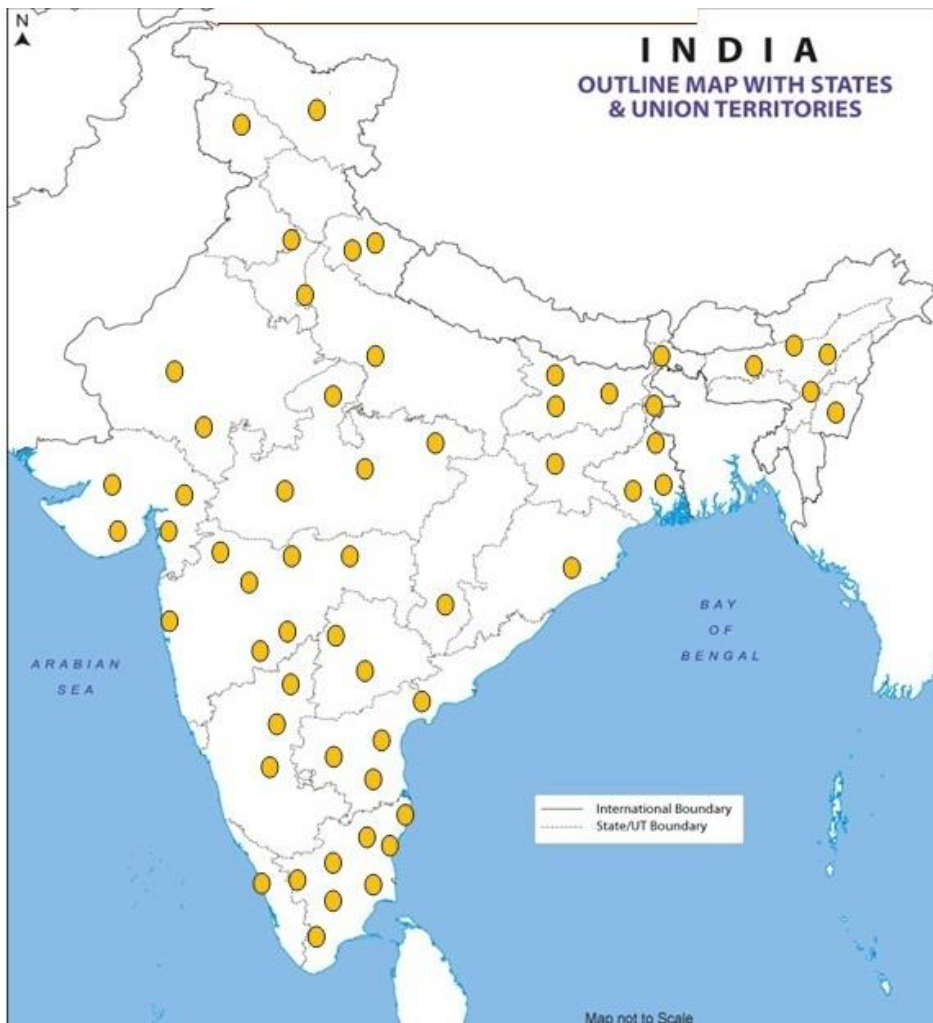


Figure 2: COVID-19: Laboratories fcailtating sample collection and transport



52 testing sites for COVID -19

State/UT		LIST OF VRDLs
Andhra Pradesh	1.	Sri Venkateswara Institute of Medical Sciences, Tirupati
	2.	Andhra Medical College, Visakhapatnam, Andhra Pradesh
Andaman & Nicobar islands	3.	GMC, Anantapur, AP
	4.	Regional Medical Research Centre, Port Blair, Andaman and Nicobar
Assam	5.	Gauhati Medical College, Guwahati
	6.	Regional Medical Research Center, Dibrugarh
Bihar	7.	Rajendra Memorial Research Institute of Medical Sciences, Patna
Chandigarh	8.	Post Graduate Institute of Medical Education & Research, Chandigarh
Chhattisgarh	9.	All India Institute Medical Sciences, Raipur
Delhi-NCT	10.	All India Institute Medical Sciences, Delhi
	11.	National Centre for Disease Control, Delhi
Gujarat	12.	BJ Medical College, Ahmedabad
	13.	M.P.Shah Government Medical College, Jamnagar
Haryana	14.	Pt. B.D. Sharma Post Graduate Inst. of Med. Sciences, Rohtak, Haryana
	15.	BPS Govt Medical College, Sonipat
Himachal pradesh	16.	Indira Gandhi Medical College, Shimla, Himachal Pradesh
	17.	Dr.Rajendra Prasad Govt. Med. College, Kangra, Tanda, HP
Jammu and Kashmir	18.	Sher-e- Kashmir Institute of Medical Sciences, Srinagar
	19.	Government Medical College, Jammu
Jharkhand	20.	MGM Medical College, Jamshedpur
Karnataka	21.	Bangalore Medical College & Research Institute, Bangalore
	22.	National Institute of Virology Field Unit Bangalore
	23.	Mysore Medical College & Research Institute, Mysore
	24.	Hassan Inst. of Med. Sciences, Hassan, Karnataka
	25.	Shimoga Inst. of Med. Sciences, Shivamogga, Karnataka
Kerala	26.	National Institute of Virology Field Unit, Kerala
	27.	Govt. Medical College, Thriuvananthapuram, Kerala
	28.	Govt. Medical College, Kozhikhode, Kerala
Madhya Pradesh	29.	All India Institute Medical Sciences, Bhopal
	30.	National Institute of Research in Tribal Health (NIRTH), Jabalpur
Meghalaya	31.	NEIGRI of Health and Medical Sciences, Shillong, Meghalaya
Maharashtra	32.	Indira Gandhi Government Medical College, Nagpur
	33.	Kasturba Hospital for Infectious Diseases, Mumbai

Manipur	34.	J N Inst. of Med. Sciences Hospital, Imphal-East, Manipur
Odisha	35.	Regional Medical Research Center, Bhubaneswar
Puducherry	36.	Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry
Punjab	37.	Government Medical College, Patiala, Punjab
	38.	Government Medical College, Amritsar
\Rajasthan	39.	Sawai Man Singh, Jaipur
	40.	Dr. S.N Medical College, Jodhpur
	41.	Jhalawar Medical College, Jhalawar, Rajasthan
	42.	SP Med. College, Bikaner, Rajasthan
Tamil Nadu	43.	King's Institute of Preventive Medicine & Research, Chennai
	44.	Government Medical College, Theni
Tripura	45.	Government Medical College, Agartala
Telangana	46.	Gandhi Medical College, Secunderabad
Uttar Pradesh	47.	King's George Medical University, Lucknow
	48.	Institute of Medical Sciences, Banaras Hindu University, Varanasi
	49.	Jawaharlal Nehru Medical College, Aligarh
Uttarakhand	50.	Government Medical College, Haldwani
West Bengal	51.	National Institute of Cholera and Enteric Diseases, Kolkata
	52.	IPGMER, Kolkata

DHR/ICMR 57 laboratories for helping in sample collection for COVID -19

State/UT	LIST OF VRDLs
Andhra Pradesh	1. Siddhartha Medical College, Vijayawada
	2. Rajeev Gandhi Institute of Medical Sciences, Kadapa
	3. Rangaraya Medical College, Kakinada
	4. Guntur Medical College, Guntur
Assam	5. Silchar Medical College, Silchar
	6. Jorhat Medical College, Jorhat
	7. Tezpur Medical College, Tezpur
	8. Fakhruddin Medical College, Barpeta
Bihar	9. Patna Medical College, Patna
	10. Darbhanga Medical College, Darbhanga
	11. S K Medical College, Muzaffarpur
Chandigarh	12. Government Medical College & Hospital, Chandigarh
Chhattisgarh	13. Late Sri BaliramKashyap Memorial Govt. Medical College, Jagdalpur
Delhi-NCT	14. Lady Hardinge Medical College, New Delhi
Gujarat	15. Government Medical College, Surat
	16. GMC, Bhavnagar
	17. PDU GMC, Rajkot
	18. Government Medical College & SSG Hospital, Vadodara
Jammu and Kashmir	19. Government Medical College, Srinagar
Jharkhand	20. Rajendra Institute of Medical Sciences, Ranchi
Karnataka	21. Vijayanagar Institute of Medical Science, Bellary
	22. Gulbarga Institute Of Medical Sciences, Gulbarga
Kerala	23. Government Medical College, Thrissur
Ladakh	24. Sonam Namgyal Memorial Hospital, Leh
Madhya Pradesh	25. Bundelkhand Medical College, Sagar
	26. MGM Medical College, Indore
	27. Gajra Raja Medical College, Gwalior
	28. S.S Medical College, Rewa
Maharashtra	29. Government Medical College, Miraj, Sangli
	30. Seth GS Medical College & KEM Hospital , Mumbai
	31. Government Medical college, Nagpur
	32. Government Medical College, Aurangabad
	33. V. M. Government Medical College, Solapur
	34. Shri Bhausahab Hire Government Medical College, Dhule
	35. Government Medical College and Hospital & Superspeciality Hospital, Akola
Manipur	36. Regional Institute of Medical Sciences, Imphal

Odisha	37.	SCB Medical College, Cuttack
Puducherry	38.	Indira Gandhi Medical College & Research Institute, Puducherry
Rajasthan	39.	RNT Medical College, Udaipur
	40.	AIIMS, Jodhpur
Tamil Nadu	41.	Madurai Medical College, Madurai
	42.	Government Mohan Kumaramangalam Medical College, Salem
	43.	Government Medical College, Thiruvarur
	44.	Government Medical College, Villupuram
	45.	Tirunelveli Medical College, Tirunelveli
	46.	Coimbatore Medical College, Coimbatore
	47.	Madras Medical College, Chennai, Tamil Nadu
Telangana	48.	Osmania Medical College, Hyderabad
	49.	Kakatiya Medical College, Nizampura, Warangal
Uttar Pradesh	50.	UPUMS,(Formerly UPRIMS) Saifai
Uttarakhand	51.	AIIMS, Rishikesh
	52.	Doon Government Medical College, Dehradun
West Bengal	53.	Murshidabad Medical College & Hospital, Murshidabad, Berhampur, West Bengal
	54.	Midnapore Medical College & Hospital, Midnapore
	55.	North Bengal Medical College, Darjeeling
	56.	Malda Medical College, Malda
	57.	RG Kar Medical College, Kolkata