



Annual Report 2021-2022



सत्यमेव जयते

Department of Health Research
Ministry of Health & Family Welfare



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ANNUAL REPORT 2021-22

DEPARTMENT OF HEALTH RESEARCH

Ministry of Health & Family Welfare

Government of India

New Delhi

<http://www.dhr.gov.in>

Contents

Chapter-1	Introduction	1
Chapter-2	Administration and Finance	11
Chapter-3	Swachh Bharat Abhiyan	15
Chapter-4	Establishment of Network of Viral Research and Diagnostic Laboratories for Managing Epidemics and Natural Calamities	23
Chapter-5	Development of Tools/ Support to Prevent Outbreaks & Epidemics	45
Chapter-6	Establishment of Multidisciplinary Research Units (MRUs) in Government Medical Colleges/Research Institutes	47
Chapter-7	Establishment of Model Rural Health Research Units (MRHRUs) in the States	63
Chapter-8	Grant-in-Aid (GIA) Scheme for Inter-Sectoral Convergence & Coordination for Promotion and Guidance on Health Research	77
Chapter-9	Human Resource Development (HRD) for Health Research	81
Chapter-10	Health Technology Assessment in India (HTAI)	85
Chapter-11	Implementation of Schemes In North Eastern Region (NER)	101
Chapter-12	Outbreak of COVID-19	107
Chapter-13	National Ethics Committee Registry for Biomedical and Health Research (NECRBHR)	111
Chapter-14	Indian Council of Medical Research (ICMR)	113
Annexure	Budget Estimate(BE)/Revised Estimate(RE)/Actual Expenditure(AE) 2020-21 and BE/RE (projected requirement) 2021-22 with AE upto 31.12.2021 and BE 2022-23 (projected requirement) in respect of Demand No. 45 - Department of Health Research	120

CHAPTER

1

Introduction

Department of Health Research (DHR) was created as a separate Department within the Ministry of Health & Family Welfare by an amendment to the Government of India (Allocation of Business) Rules, 1961 on 17.09.2007. The Department became functional from November 2008 with the appointment of first Secretary of the Department. The aim of the DHR is to bring modern health technologies to the people through research and innovations related to diagnosis, treatment methods and vaccines for preventions; to translate them into products and processes and, in synergy with concerned organizations, introduce these innovations into public health system.

1.2 Mandate of DHR is:

- (i) Promotion and co-ordination of basic, applied and clinical research including clinical trials and operational research in areas related to medical, health, biomedical and medical profession and education through development of infrastructure, manpower and skills in cutting edge areas and management of related information thereto.
- (ii) Promote and provide guidance on research governance issues, including ethical issues in medical and health research.
- (iii) Inter-sectoral coordination and promotion of public - private - partnership in medical, biomedical and health research related areas.
- (iv) Advanced training in research areas concerning medicine and health, including grant of fellowships for such training in India and abroad.
- (v) International co-operation in medical and health research, including work related to international conferences in related areas in India and abroad.
- (vi) Technical support for dealing with epidemics and natural calamities.
- (vii) Investigation of outbreaks due to new and exotic agents and development of tools for prevention.
- (viii) Matters relating to scientific societies and associations, charitable and religious endowments in medicine and health research areas.
- (ix) Coordination between organizations and institutes under the Central and State Government in areas related to the subjects entrusted to the Department and for the promotion of special studies in medicine and health.
- (x) Administering and monitoring of Indian Council of Medical Research (ICMR).

1.3 With a view to fulfil its mandate, DHR has rolled out the following Schemes:

- (i) Establishment of Network of Viral Research & Diagnostic Laboratories for Managing Epidemics and Natural Calamities (VRDL).
- (ii) Establishment of Multi-Disciplinary Research Units (MRUs) in Govt. Medical Colleges/ Research Institutes.
- (iii) Establishment of Model Rural Health Research Units (MRHRUs) in States.
- (iv) Human Resource Development (HRD) for Health Research.
- (v) Grants in Aid scheme (GIA) for inter-sectoral convergence & Co-ordination for Promotion and Guidance on Health Research.
- (vi) Health Technology Assessment in India (HTAI).
- (vii) Development of Tools/support to prevent outbreaks & epidemics.

1.4 During the year under review, the Department has made significant progress in implementation of aforesaid schemes. 132 Viral Research & Diagnostic Laboratories (VRDLs), 92 Multi-Disciplinary Research Units (MRUs) and 28 MRHRUs were sanctioned up to 2021-22 (up to December 2021).

1.5 VRDL, MRU and MRHRU schemes are helping in building up a strong and effective ecosystem for carrying out health research in the country and for introduction of new technologies, new methods of treatment and products/processes into the public health system.

1.6 In 2021-22 (till 31.12.2021), MRUs undertook 530 and MRHRUs 58 research projects. Besides this, a total number of 127 fellowships were supported under HRD Scheme during the year 2020-21 including 52 new fellowships of 2020-21. During the year 2021-22 (upto 31st Dec 2021), a total number of 145 fellowships including 43 new fellowships of 2020-21 have been supported. In addition, a total number of 284 proposals have been received in response to online call for proposals for the year 2021-22.

1.7 A total number of 317 research projects were approved and funded under the GIA Scheme upto 2020-21 including 43 new research projects of 2020-21. During the year 2021-22 (upto 31st Dec 2021), a total number of 70 research projects including 23 ongoing research projects have been funded. In addition, a total number of 90 proposals have been received in response to online call for proposals for the year 2021-22 and are under consideration.

Assisted Reproductive Technology (Regulation) Act, 2021

1.8 The Assisted Reproductive Technology (Regulation) Act 2021 has come into force w.e.f. 25 January, 2022. The Act aims to regulate and supervise the assisted reproductive technology clinics and the assisted reproductive technology banks, safe and ethical practice of assisted reproductive

technology services for addressing the issues of reproductive health where assisted reproductive technology is required for becoming a parent or for freezing gametes, embryos, embryonic tissues for further use due to infertility, disease or social or medical concerns and for regulation and supervision of research and development. The Bill on the subject was passed in Parliament during Winter Session of 2021.

Surrogacy (Regulation) Act, 2021

1.9 The Surrogacy (Regulation) Act, 2021 has come into force w.e.f. 25 January, 2022. The Act aims at regulating surrogacy in India by prohibiting commercial surrogacy and allowing only altruistic surrogacy, which involves no monetary compensation to the surrogate mother other than the medical expenses and insurance coverage during pregnancy and establishment of a National Surrogacy Board at the Central level and State Surrogacy Boards and appropriate authorities in States and Union Territories. The Bill on the subject was passed in Parliament during Winter Session of 2021.

Health Technology Assessment in India (HTAI)

1.10 Health Technology Assessment in India (HTAI) is a sub-scheme under the umbrella scheme Human Resource and Capacity Building in the 15th Financial Commission approved for year 2021-22 to 2025-26 under the Department of Health Research (DHR), Ministry of Health & Family Welfare (MoHFW), Government of India. HTAI aims to maximize health in the population, reduce out of pocket expenditure (OOP) and reduce inequality; to support the process of decision-making in health care at the Central and State policy level by providing reliable information based on scientific evidence and develop systems and mechanisms to assess new and existing health technologies based upon their cost-effectiveness, clinical-effectiveness, safety and equity issues by a transparent and inclusive processes. It collects and analyses evidence in a systematic and reproducible way and ensure its accessibility and usefulness to inform health policy. HTA could be a useful tool to support the Government in its commitment towards Universal Health Coverage. Established in 2017 HTAI has completed 29 studies and several studies are underway. It has also conducted several workshops and symposium for the capacity building. A Health Technology Assessment Board Bill 2021, has been proposed to institutionalize the structure and function of the HTAI body. The draft bill was sent for inter-ministerial/state/union territories consultation and comments have been received from 28 Ministries and 24 States.

Preparation of Standard Treatment Workflows (STW):

1.11 Indian Council of Medical Research, Department of Health Research initiated a mission project of developing Standard Treatment Workflow (STWs) in 2018 and volume-1 of STWs for 53 conditions in 9 specialties was developed. It has been hosted on the ICMR website for wider dissemination. These workflows comprise of symptoms, signs, diagnostics, treatment etc. for concerned diseases. During this year, volume-2 of the STWs is being developed in 11 clinical specialties comprising 51 conditions. The meetings of the expert group have been initiated.

National List of Essential Medicine

1.12 The Standing National Committee on Medicine (SNCM) was constituted by Ministry of Health and Family Welfare with a mandate to revise National List of Essential Medicine (NLEM) 2015 under the chairmanship of Prof. Balram Bhargava, secretary-DHR and DG, ICMR. National List of Essential Medicines (NLEM) is expected to result in better quality of medical care, better management of medicines and cost-effective use of health care resources. The list of essential medicines is intended to have a positive impact on the availability and rational use of medicines.

1.13 The process of revision of NLEM 2015 involved several rounds of consultation meetings with subject experts, various stakeholders including non-governmental organizations (NGOs), patient groups, civil societies, pharmaceutical industry, manufacturing associations, concerned government departments and organizations. Various representations received from the stakeholders through post and emails were also considered and deliberated by the committee.

1.14 SNCM Secretariat has convened more than 130 meetings including 6 Core committee meetings, 4 Stakeholders national consultation meetings, 10 sub-committee meetings, 90 expert group meetings, 6 special purpose meetings and 15 internal meetings to deliberate and revise the NLEM, 2015. NLEM, 2021 was released by Honourable Union Minister of Health and Family Welfare on 2nd September, 2021. The NLEM 2021 contains 399 medicines as compared to 376 in NLEM 2015.

1.15 In addition to the list of medicines, the committee is also mandated to prepare the list of following essential healthcare products-

- Essential list of Medical Devices
- Essential list of Medical Disposables and Consumables
- Essential list of Hygiene and Other Healthcare products

The deliberations on the above-mentioned lists are in progress.

India TB Research Consortium (ITRC)

1.16 India TB Research Consortium (ITRC) is a flagship programme of ICMR and DHR to tackle TB in a mission mode. The significant achievements of the programme are development of the New indigenous cost effective molecular Point of care (POC) diagnostics for detection of TB/MDR-TB and also paediatric and extrapulmonary TB which has been successfully adopted by National Programme after recommendations of ICMR. Three new kits for improved smear microscopy at peripheral level and a simple bio-safe sputum transportation and DNA extraction kits have also been validated by ICMR and recommended to NTEP.

1.17 The ICMR also recommended high dose rifampicin (25mg/kg BW) for Drug sensitive TB in the standard treatment for improved treatment outcomes, to the national programme. The all oral 6-9 months shorter regimen with 4 drugs i.e Bedaquiline, Delamanid, Clofazimine and Linezolid were also found to be effective for treatment of XDR-TB and has been recommended to National Programme.

1.18 A Phase III regulatory clinical trial for evaluating the safety and efficacy of two TB vaccines: VPM1002 and MIP (indigenous vaccine), as against Placebo is ongoing at 8 main sites with 10 sub-sites. The trial completed enrolment of 12717 participants in December 2020, who are under different stages of follow-up. The safety analysis has shown that both the vaccines are safe and acceptable. The follow-up for efficacy is ongoing.

1.19 Under the implementation research, active case finding in severely malnourished children admitted to nutritional rehabilitation centers has shown very high (5%) incidence of TB and the case detection can be improved with proper training and providing point of care diagnostic tests under national Programme. Interim results of a Cluster randomized trial of nutritional support to TB patients and their HH contacts in communities with high prevalence of under nutrition in Jharkhand has shown significantly lower mortality rates in the patients and reduction in TB incidence in HHCs.

1.20 The ongoing studies include validation of new indigenous, cost-effective molecular tests for TB, and latent TB, clinical trials of new shorter treatment regimen for TB and MDR-TB and TB prevalence in rickshaw drivers and construction workers and interventions for reducing TB and latent TB. The study on introduction of quality management system under National Programme to improve TB diagnostic services will have a larger impact on TB diagnosis under the National Programme and is about to be concluded. Other studies included evaluating efficacy of Energy Dense Nutritional Supplement (EDNS) as adjunct to standard DOTS therapy in improving treatment outcomes in malnourished pulmonary TB patients and a demonstration project for TB elimination in Saharia Tribe.

National Ethics Committee Registry for Biomedical and Health Research (NECRBHR)

1.21 DHR is designated authority to register Ethics committees for Biomedical and Health Research under the ambit of the New Drugs and Clinical Trials Rules 2019, Drugs and Cosmetic Act 1940. National Ethics Committee Registry for Biomedical & Health Research (NECRBHR) became functional in September 2019 allowing applicants to submit applications online through Naitik portal (<https://naitik.gov.in/>). Around 1600 login requests and 1050 EC registration applications have been received till date which includes more than, 525 hospitals, 309 medical/Dental colleges and 55 universities. Continuous efforts have been made to ensure users' friendliness of the portal by integrating eHastakshar based validation, auto-filling wherever possible and by reducing submission requirements for users' ease and reducing the compliance burden.

Swachhta Action Plan Activities

1.22 Swachhta Action Plan, an inter-ministerial approach coordinated by Department of Drinking Water and Sanitation, M/o Jal Shakti was formulated and complied with, to mainstream Swachhta within the existing programmes and schemes of the Department. The Budget provision in respect of DHR for the FY 2021-22 was Rs. 20 Lakhs.

1.23 A Special Campaign for disposing pending matters, coordinated by Department of Administrative Reforms and Public Grievances from 2nd October to 31st October, 2021 was carried out in DHR, which is being continued for the present. During this campaign an overall effort was made by the Department to dispose off pending matters like VIP References, Parliamentary Assurances, Inter-Ministerial Consultations, Public Grievances and Appeals, State Government References etc. in time bound manner. This was further converted into a weekly phenomenon. Also the SCDPM Portal of DARPG was regularly updated in this regard.



Inauguration ceremony of the new building of the Institute by Hon'ble Prime Minister Shri Narendra Modi on 06.12.2021. Dr. Balram Bhargava, Secretary (DHR) cum DG, ICMR graced the post inauguration events.



Hon'ble Minister of Health and Family Welfare Dr. Mansukh Mandaviya, addressing the participants on the occasion of launch of ICMR's initiative for Drone based vaccine delivery system in North Eastern region of the country. Speaking on the occasion, Dr. Balram Bhargava, Secretary (DHR) cum DG, ICMR said that "In the war against COVID-19, i-DRONE is another powerful weapon in India's arsenal. This technology will not only be helpful for COVID-19, but will further open similar avenues for other diseases."



Dr. Balram Bhargava, Secretary (DHR) cum DG, ICMR on the occasion of release of commemorative Covaxin Postage stamp on 16.01.2022



Release of the book 'Going Viral' authored by Dr. Balram Bhargava, Secretary (DHR) cum DG, ICMR on 23.11.2021. The book captures first-hand experience of scientists, who worked tirelessly to develop India's first indigenous vaccine.



Event of signing of Letter of Intent on 02.10.2021 between ICMR, Ministry of Health and Social Protection and Ministry of Science, Technology and Innovation, Bogota, Colombia at Ministry of External Affairs, New Delhi in the presence of Hon'ble Vice President and Minister of Foreign Affairs, Colombia, Marta Lucia Ramirez de Rincon and Hon'ble External Affairs Minister of India, Dr. S. Jaishankar. The Letter of Intent was built on collaborative research in various areas of health and biomedical research. Dr. Balram Bhargava, Secretary (DHR) cum DG, ICMR signed the letter of intent from the side of ICMR.

CHAPTER 2 Administration and Finance

The Department of Health Research formulated five Central Sector Schemes for implementation across the country. Subsequently, two more schemes namely (i) Development of Tools/support to prevent Outbreaks & Epidemics and (ii) Health Technology Assessment in India (HTAI) have been introduced. Over the years, additional responsibilities have been entrusted to the Department which include HTAI, National List of essential Medicines (NLEM), Preparation of Standard Treatment Workflow (STW), India T.B. Research Consortium, Ethics Committee, response to the outbreak of Covid-19 pandemic. Further, the Indian Council of Medical Research (ICMR) is administered by DHR. Presently, DHR has a total of 42 sanctioned posts in different grades with incumbency position as under:

S. No.	Name of the post	Total sanctioned strength	Incumbency position	Vacancy position
1.	Joint Secretary	2	2	0
2.	Director/Deputy Secretary	4	4	0
3.	Sr. Principal Private Secretary	0	2*	0
4.	Scientist 'E'	2	0	2
5.	Scientist 'D'	2	0	2
6.	Under Secretary	4	4	0
7.	Principal Private Secretary	0	2*	0
8.	Scientist 'C'	2	0	2
9.	Assistant Director	0	1*	0
10.	Section Officer	6	2	4
11.	Private Secretary	2	2	0
12.	Assistant Section Officer	11	9	2
13.	Junior Translation Officer	1	1	0
14.	Personal Assistant	2	1	1
15.	Stenographer Grade 'D'	2	0	2
16.	Junior Secretariat Assistant	1	0	1
17.	Typist (Hindi)	1	0	1
	Total	42	30 (5*)	17

* 05 incumbents have been posted by the Department of Health and Family Welfare.

2.2 The process of filling up of the vacant posts is under consideration in consultation with the concerned Departments/Cadre Controlling Authorities. Against the advertisement of the Department, applications have been received for the post of Scientist C, D and E and the matter is being pursued with the UPSC for finalizing selection of eligible candidates to the posts of Scientist C, D and E.

2.3 **Grievance Redressal Mechanism:** The Department has Grievance Redressal Mechanism with the Deputy Secretary as nodal officer.

2.4 **Complaints Committee for Prevention of Sexual Harassment of Women at Work Places:** Department has setup a Complaint Redressal Mechanism to look into the matters/cases of sexual harassment of female employees of the Department.

2.5 **E-Governance Initiatives:** The Department has taken following E-Governance measures:

- (i) The Department has been using the latest e-Office version, designed and developed by the National Informatics Centre, for online processing of receipts and files.
- (ii) AADHAR based Biometric Attendance System is being used in the Department. It enables monitoring of attendance and generation of reports through the website attendance.gov.in designed and hosted by NIC.
- (iii) Official e-mail id of all staff members have been created under the Government of India e-mail services and are used for all official communication. VPN facility has been provided to the officers/officials of DHR to facilitate work from home. The system is working effectively.
- (iv) All computer systems have Local Area Network (LAN) connectivity through NIC and leased line circuits to facilitate speedy implementation of e-Governance Policy of Government.
- (v) Government e-Marketplace (GeM) is a paperless, cashless and system driven e- market place that enables procurement of common use goods and services with minimal human interface. As per the latest General Financial Rules of Government of India, the Department of Health Research uses GeM for procurement of common use goods and services in a transparent, efficient and cost-effective manner. During 2021-22 (till date), the procurement through GeM has been approximately 95% of the overall procurement of Goods and Services by the Department.
- (vi) In the present Covid-19 pandemic situation, meetings and conferences are arranged on virtual basis.
- (vii) To improve user experience and ease of doing business, provisions were implemented under the e-governance initiatives of Department of Health Research. The modules were implemented under various schemes and programs of DHR/ICMR to improve user ease.
- (viii) e-Hastakshar was implemented/integrated in the digital portal of National Ethics committee registry for Biomedical and Health Research (NAITIK portal) to simplify and expedite the process of registration of ethics committees with DHR. e-Hastakshar offers an online platform to citizens for instant signing of their documents securely in a legally acceptable form.

- (ix) Applications under the GIA and HRD schemes can be submitted online in an easy and transparent mode.
- (x) The National Apex Committee for Stem Cell Research and Therapy (NAC-SCRT) was upgraded to a completely online portal to receive and process application submissions from institutional committee for stem cell research (IC-SCR) across the country
- (xi) An inventory status module was integrated in the COVID-19 India portal of MoHFW to collect COVID-19 inventory status of all States/Union Territories.
- (xii) ICMR developed provisions for easy access and download of COVID-19 testing reports for citizens through the ICMR COVID-19 report portal securely through registered mobile number.

FINANCE:

2.6 Allocations and Expenditure from 2015-16 to 2019-20 (14th Finance Commission period), 2020-21 and also for 2021-22 and 2022-23 (B.E.) (in 15th Finance Commission period 2021-22 to 2025-26) are as follows:

(Rs. in Crores)

Year	BE	RE	Actual Expenditure
2015-16	1018.17	1012.51	992.77
2016-17	1144.80	1344.80	1323.60
2017-18	1500.00	1743.39	1731.68
2018-19	1800.00	1742.73	1727.87
2019-20	1900.00	1950.00	1934.03
Total (14th Finance Commission period)	7362.97	7793.43	7709.95
2020-21	2100.00	4062.30	3124.59
2021-22	2663.00	3080.00	2083.61 (expenditure upto 31.12.2021)
			996.39 (estimated expenditure from 01.01.2022 to 31.03.2022)
2022-23	3200.65		

A statement indicating the scheme-wise BE/RE/actual expenditure for 2020-21 and BE/RE for 2021-22 with actual expenditure upto 31st December, 2021 and BE 2022-23 in respect of Demand No.45-Department of Health Research is given at Annexure-I.

Audit Observations:

2.7 There was no C&AG Audit Para pertaining to the Department of Health Research (DHR) during the year.

The position of PAC/C&AG Audit Paras pertaining to the Indian Council of Medical Research is as follows:

I	No PAC Audit Para was pending during the year 2021-22
II.	No C&AG Audit Para was pending during the year 2021-22



Smt. Geeta Narayan, Joint Secretary (DHR) administering the pledge of 'National Unity Day' to the officials of DHR on 31.10.2021



Smt. Geeta Narayan, Joint Secretary, DHR reciting 'Vande Mataram' along with the officials of DHR

CHAPTER

3

Swachh Bharat Abhiyan

Cleanliness is one of the priority areas of focus in the day- to- day business of the Department which is ensured through strict supervision, regular monitoring and via various mechanisms in place as follows:-

Swachhta Action Plan (SAP)

3.2 SAP is an inter-ministerial approach coordinated by Department of Drinking Water and Sanitation, M/o Jal Shakti to mainstream Swachhta within the existing programmes and schemes of Ministries and the Departments. The Budget provision for Swachhta Action Plan 2021-22 is Rs. 20 lakhs. The various important components included in SAP for DHR are as under:-

- (i) Swachhta Pledge to be taken by all in DHR.
- (ii) Digitisation of office records/ e-office.
- (iii) Separate dustbin / bags for all officials and staff to facilitate waste segregation as WET and DRY.
- (iv) Cleaning and beautification of surrounding areas.
- (v) Installation of MASK and SANITARY NAPKINS incinerators along with MASK dispensers.
- (vi) Auction of obsolete / unserviceable items in the department.
- (vii) Felicitation of Safai Karmacharis (Swachhta Warriors).
- (viii) Enhancing the quality of indoor air.
- (ix) Cleaning of drinking water coolers and water purifiers on regular basis.

The Swachhta Action Plan for ICMR (HQ) and its various Institutes/Centres is as follows:

S.No.	Activity	Amount (Rs.)
1.	Maintenance/Repair of Toilets	50,000
2.	Seminar/Workshop/training programme/lecture	50,000
3.	Digitization of office records	50,000
4.	Shramdaan Activities/cleaning activities	50,000
	Total	2,00,000 to every Institute/Centre of ICMR

Swachhta Pakhwada (1st to 15th October, 2021)

3.3 Department of Health Research also observed Swachhta Pakhwada from 1st to 15th October, 2021 with following activities:

- (i) Swachhta Pledge and Awareness Campaign.
- (ii) Cleaning and beautification of surrounding areas.
- (iii) Felicitation of Safai Karmacharis (Swachhta Warriors) to recognize their work.
- (iv) Cleaning of drinking water coolers and water purifiers.



Swachhta Pledge by DHR officials/staff



Display of Swachhta messages in DHR



Felicitation of Housekeeping Staff



Dry and Wet Dustbins kept at various places

Cleanliness Drive under the Special Campaign (2nd to 31st October, 2021)

3.4 A Special Campaign for disposing pending matters, coordinated by Department of Administrative Reforms and Public Grievances from 02.10.2021 to 31.10.2021, was carried out in DHR. During the Special Campaign, a cleanliness drive was undertaken in the Department, both indoor as well as outdoor. During the drive following activities were undertaken:

- Cleaning of sections/rooms of Officials.
- Cleaning of common areas like corridors, washrooms, etc.
- Reviewing and weeding out of files
- Maintenance activities in outdoor areas like filling up of potholes, etc.
- Disposal of waste paper, obsolete items/equipments.



The corridors of the Department were cleaned up by removing almirahs during the current cleanliness campaign.



Cleaning up of rooms in DHR



Cleaning up of rooms in DHR



Cleanliness Drive in progress in DHR

CHAPTER

4

Establishment Of Network Of Viral Research and Diagnostic Laboratories For Managing Epidemics And Natural Calamities

During the past few years, India has witnessed several outbreaks of emerging/ re-emerging viral infections. Annual epidemics of Dengue, Chikungunya, Influenza, Rotavirus, Measles Rubella, Japanese encephalitis etc. are reported from all parts of the country. Besides, in the past two decades, India has witnessed acute outbreaks or threats of infiltration of new or exotic viruses such as Nipah virus (2001; 2007; 2018, 2019 & 2021); SARS-CoV (2003); Avian Influenza H5N1 (2006); ECSA strain of chikungunya (2006); pandemic influenza (2009); Zika virus (2016, 2018 & 2021). Ebola, Yellow fever and MERS-CoV (Middle East Respiratory Syndrome-coronavirus) are the other potential viral agents which pose a serious threat to the country.

4.2. Realizing the high risk faced by the country due to emerging/re-emerging viral infections and limited capacity for timely detection of such viruses, the Department of Health Research (DHR)/Indian Council of Medical Research (ICMR) took a far-sighted decision of enhancing the country's capacity for early identification and diagnosis of all viral infections of public health importance. This initiative of DHR/ICMR has resulted in rolling out on approval of the VRDL Scheme by the Union Cabinet.

4.3 Viral Research & Diagnostic Laboratories (VRDLs) has played a significant role in surveillance, diagnosis and detection of outbreaks. The Scheme is in the mid phase for setting up of new VRDLs and creating high quality systems for existing network which has significant role in identification of emerging/ re-emerging viral pathogens at an early stage and preventing spreading of epidemics. The network of VRDLs is now working in synchronized way by augmenting the quality parameters for consistent, reliable and high-quality diagnosis; initiated event-based surveillance for fast detection of outbreaks; strengthened coordination of VRDLs with the State public health system, Integrated Disease Surveillance Program (IDSP) and National Vector Borne Disease Control Program (NVBDCP); initiated structured research projects which would translate into information for drafting/refining public health policies. Some of the key contributions of VRDL network are as below:

- Sentinel surveillance for Zika viruses (ZIKV) initiated with 35 VRDLs in 2018 has now been expanded in the entire network of VRDLs.
- A pan India Epidemiological, Virological and Genomic Surveillance network with 21 VRDLs has been established for Human Influenza and SARS-CoV-2 viruses. The influenza virus types and subtypes data is also fed into WHO FluNet portal through ICMR-NIV Pune.
- In September 2013, India, along with other World Health Organization-South East Asia Region (WHO-SEAR) countries, targeted to implement Measles- Rubella elimination programme by 2023. 15 VRDLs have been involved in WHO Global Measles Rubella Laboratory Network

(GMRLN) to conduct case based surveillance for Measles and Rubella. Under phase I, six VRDLs have been accredited by WHO for measles rubella testing and nine more VRDLs are in the advanced stages of the induction and accreditation. Active surveillance along with strong laboratory network is underway.

- Strengthening of non-viral diagnostic capacity: Acute undifferentiated febrile illness (AUFI) is often undifferentiated in public health settings. AUFI has been frequently characterized as fever without apparent localized signs and symptoms. The major causes of AUFI in India are malaria, influenza, dengue, typhoid, chikungunya, leptospirosis, scrub typhus and other viral hemorrhagic fever. Fifty VRDLs have been strengthened in diagnosis of Scrub Typhus and thirty VRDLs in Leptospirosis. This has broadened the scope of VRDLs beyond viral diseases. Manuscript entitled “Determination of cut-off value for serological diagnosis of Scrub typhus by detection of anti-Orientia tsutsugamushi IgM ELISA in India” has been accepted in the Indian Journal of Medical Research.
- Turnaround time reduced from 7 days to 24-48 hours.
- Scientists from nine VRDLs have been given hands-on training on Biosafety and Biosecurity-handling emerging/re-emerging viral infections (Nipah, Ebola etc.) by ICMR-NIV, Pune. This would serve as a stepping stone towards creating capacity for a countrywide biosecurity platform.
- A sizeable number of VRDLs have been able to establish robust linkages with State IDSP, NVBDCP and State public health departments, thus increasing outreach of public health programs.
- VRDLs have been actively involved in COVID-19 testing during the year 2021. This impacted the routine diagnosis of other viral agents of public health importance and due to which, no. of tests conducted by the VRDLs were less as compared to pre-pandemic time. The VRDLs are currently diagnosing 15-35 viral etiology. Testing data are being fed into the Data Mining Centre at ICMR-National Institute of Epidemiology (NIE). Details of tests conducted and outbreaks investigated by VRDL Network and reported to the NIE portal during the year 2021 are given below:

Table 1: Tests conducted and reported to Data Mining Centre by VRDL Network

Parameters	Apr 2014 - Dec 2021	Jan 2021 - Dec 2021
Total no. of patients investigated by VRDLs	1595589	242888
Total no. of tests run	2894137	445179
Total no. of tests positive	420569	53002
Total cases positives (%)	377817 (24%)	47971 (20%)
Disease Cluster diagnosed by VRDLs	1300	54

Table 2: Outbreaks investigated and reported to Data Mining Centre by VRDL Network during 2021

Disease Cluster (Jan 2021 - Dec 2021)	Number
Dengue	36
Japanese Encephalitis	2
Leptospira	2
Varicella Zoster Virus (VZV)	2
Chikungunya & Dengue (Mixed)	1
Hepatitis A virus (HAV)	2
Influenza A Pandemic H1N1	1
Norovirus	2
Scrub Typhus	2
Respiratory Syncytial Virus	1
Zika Virus	1
Chikun Gunya	2
Total	54

Training / Workshops: Majority of the trainings and workshops were conducted virtually during the year due to ongoing COVID-19 pandemic. However, several virtual training sessions have been conducted for VRDL staff. Technicians plus Scientists have been trained on techniques and assays for diagnosing various virus aetiologies (including SARS-COV 2, Zika Virus, and Yellow Fever diagnostics) and biosafety and biosecurity parameters.







❖ **Data Mining Centre (ICMR-National Institute of Epidemiology, Chennai):**

- No. of training conducted in the year 2021 (Jan 2021 to Dec 2021): 2
- Total No. of Person trained in the 2021 (Jan 2021 to Dec 2021): 244
- No. of VRDLs have started reporting to Data Mining Centre at National Institute of Epidemiology (NIE):105

❖ **Resource Centre VDL (ICMR-NIV, Pune):**

- No. of training conducted in the year 2021 (Jan 2021 to Dec 2021): 6
- Total No. of Person trained in the 2021 (Jan 2021 to Dec 2021): 396
- Zika virus - In order to strengthen the capacity of Zika Virus diagnosis across the country, 4 VRDLs with 20 participants were trained for Zika Virus diagnosis in July, 2021 followed by a virtual training of all the Viral Research and Diagnostic Laboratories (VRDLs) on December 1, 2021. 432 participants attended this training.
 - KFD virus - In order to strengthen the capacity for Viral Hemorrhagic Fever (VHF) diagnosis two virtual trainings were conducted in September and October 2021, two

virtual trainings on Biosafety and KFDV molecular and serological diagnosis were conducted. 58 participants attended these meetings.

- Intense training on Biorisk mitigation, donning and doffing of Personal Protective Equipment was imparted to the VRDL team of GMC Kozhikode and the field team members of the National Health Mission on September 7-8, 2021 during Nipah outbreak 2021. 16 participants attended this training.

During the year, EQA panels of three arboviruses (Dengue, Chikungunya, Japanese encephalitis IgM ELISA) have been supplied to 80 VRDLs.

❖ On site Hands on Trainings:

- A six days “Orientation and Hands-on Training on Illumina NGS platform” was organized by the Maximum Containment Facility of ICMR-National Institute of Virology, Pune, from October, 4-9, 2021. Two participants from BMCRI, Bengaluru had participated in this training. This training was conducted with the objective to strengthen the BMCRI, Bengaluru laboratory for setting up the next generation sequencing facility.
- A six days (29.11.2021 to 04.12.2021) hands-on training program on Cell culture and isolation; Antigenic characterization - HA & HAI was conducted at ICMR-NIV Influenza centre. In this hands-on training six participants have attended this hands-on training from six Viral Research and Diagnosis Laboratories (VRDLs) VRDLs performing the role of referral labs in ILI/SARI surveillance have participated.

❖ Trainings by VRDL (Coordinating centre):

Scrub typhus - A virtual training for 35 VRDLs was organized by KGMC Lucknow (Coordinating site for Scrub typhus surveillance) on 17th August, 2021.

- Biosafety level-3 facilities: Biosafety and biosecurity are essential pillars of health safety. Containment laboratories like Biosafety level-3 are highly specialized facilities for handling highly pathogenic micro-organisms. A high containment biosafety Level - 3 (BSL-3) is designed with appropriate engineering controls to undertake diagnosis and research on high-risk pathogens with serious consequences, under negative air pressure to prevent infection to laboratory workers and also ensure that infectious samples are not spilled into the environment. A total of ten BSL-3 labs at the Regional Level Virus Research and Diagnosis Laboratories (VRDLs) have been sanctioned and are in different stages of development. A review meeting was conducted with all the regional level VRDLs on 15.09.2021 to review the progress of establishment of BSL-3 laboratories.

4.4 Physical Target

12th Plan Period (2012-2017)

Year	Target			Actual Achievement		
	Regional VRDL	State VRDL	Medical College VRDL	Regional VRDL	State VRDL	Medical College VRDL
2013-2014	2	5	10	2	4	6
2014-2015	3	10	40	3	3	13
2015-2016	5	15	40	0	4	10
2016-2017	0	0	30	0	4	16
Total	10	30	120	5	15	45

14th Finance Commission Period (2017-2018 to 2020-2021)

Year	Target			Actual Achievement		
	Regional VRDL	State VRDL	Medical College VRDL	Regional VRDL	State VRDL	Medical College VRDL
2017-2018	5	10	15	2	1	11
2018-2019	0	0	30	2	4	10
2019-2020	0	0	0	1	2	9
2020-2021	0	0	0	0	3	14
Total	5	10	45	5	10	44

15th Finance Commission Period (2021-2022 to 2025-2026)

Year	Target			Actual Achievement till 31/12/2021		
	Regional VRDL	State VRDL	Medical College VRDL	Regional VRDL	State VRDL	Medical College VRDL
2021-22 to 2025-2026	1	2	39	0	1	7

4.5 The financial achievements from inception of the Scheme are given in the table below:

(Rs. In Crore)

Year	BE	RE	Actual Expenditure
2013-2014	45.00	34.00	34.00
2014-2015	35.00	30.00	30.00
2015-2016	46.00	45.25	45.25
2016-2017	39.25	44.25	44.25
2017-2018	56.00	66.00	66.00
2018-2019	70.00	55.00	52.14
2019-2020	80.00	73.00	69.37
2020-2021	83.00	83.00	81.89
2021-2022	82.00	79.20	51.02 (expenditure till 31.12.2021)
			28.18 (estimated expenditure from 01.01.2022 to 31.03.2022)

4.6 Components of the Scheme and Funding Norms:

- (i) **Regional Labs:** The non-recurring cost of a Regional Level Lab would be Rs.14.575 crore for development of infrastructure, which include civil works/ furnishing & furniture (Rs.9.425 crore) and equipment (Rs.5.15 crore). The recurring cost of Regional Lab per annum is Rs 0.968 crore, towards staffing (Rs.61.8 lakh), consumables, contingencies and training (Rs.35 lakh).
- (ii) **State Level Labs:** The non-recurring cost of a State Level Lab would be Rs.2.971 crore for development of infrastructure which include civil works mainly for renovation/modification of the building (Rs.62.50 lakh) and for equipment (Rs.2.346 crore). The recurring cost of a State Level Lab per annum is Rs.68.00 lakh which will be extended for a period of five years for engaging trained technical manpower on contractual basis (Rs. 43.00 lakh per annum) and for consumables, contingencies and training (Rs.25.00 lakh).
- (iii) **Medical College Labs:** The non-recurring cost of a Medical College Level Lab would be Rs.1.507 crore comprising of Rs.88.20 lakh for equipment and Rs.62.50 Lakh for civil works /renovation of building. The recurring cost of a Medical College Level Lab per annum is Rs.46.40 lakh, towards staffing (Rs.31.4 lakh) and consumables, contingencies and training (Rs.15 lakh).

Role of VRDL Network in COVID-19

4.7 A decade ago, when India witnessed one of the worst flu pandemic, swine flu in 2009, the public health system was paralyzed due to severe dearth of infrastructure for molecular diagnosis of viral infections and the public health professionals helplessly watched the pandemic quickly escalating to all parts of the country. Though the country was equipped to carry out serology-based ELISA or rapid blood tests, but the virus was challenging and could not be detected in blood. Similar challenge is posed by several other respiratory viruses, MERS-CoV, SARS-CoV and SARS-CoV-2 causing COVID19 which pose a threat to us time and again.

4.8 Molecular virological test was the only option for detection of H1N1 which was there in only two Institutions: ICMR-National Institute of Virology at Pune and National Centre for Disease Control in Delhi in a vast country like India. The event was an eye-opener for the public health system of the country wherein glaring gaps in capacity were brought out. This in turn paved the way for strengthening the molecular diagnostic facilities for viruses in India through the Virus Research & Diagnostic Laboratory (VRDL) Network of DHR. Contrary to 2009, in January 2020, when the threat of COVID19 epidemic knocked our doors, the country could immediately scale up its preparedness by standardizing diagnostic assays at ICMR- National Institute of Virology in Pune. Besides country's apex virology institute, the VRDL network is continuously playing the key role as the backbone of country's strength for the COVID-19 testing.

- As on date, 132 VRDLs have been established and 124 of them are functional and are involved in COVID-19 testing. Results are being reported to ICMR COVID-19 testing Portal.
- More than 60 million (66525439) samples have been tested for COVID-19 till the month of December 2021.

4.9 QA/QC Activity for COVID-19 Labs: India has expanded COVID-19 testing laboratories with different testing platforms in a phased manner. With the vast network of laboratories and enormous number of diagnostic kits used within the laboratories, it is important to institute quality parameters to reduce errors in diagnosis. To ensure quality diagnosis of the laboratories, Inter-Laboratory Quality Control and External Quality Assurance Programme has been launched for COVID-19 testing laboratories. Both these activities build confidence in testing laboratories for their quality diagnosis and are being co-ordinated and monitored at ICMR Hq. The EQA has been rolled out by providing diagnostic proficiency testing panels from Australia through WHO support.

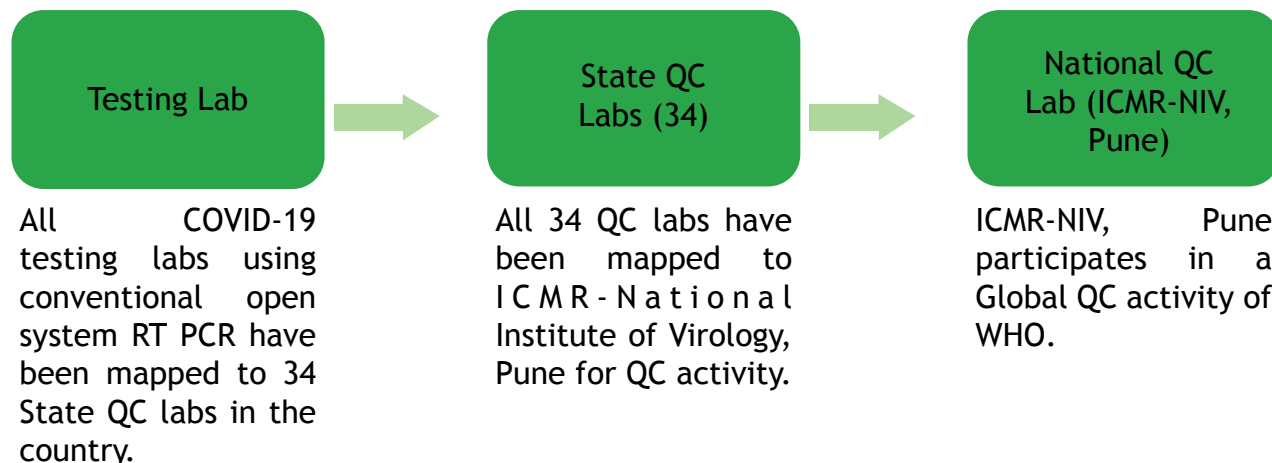
4.10 Till date, 1600 panels have been recieved from WHO which were distributed to 1580 laboratories across the country. 91% of the laboratories qualified the EQA exercise.



(COVID-19 TESTING)

4.11 ILQC of the labs is implemented through a three-tier structure.

- National QC Lab
- State QC Lab
- Testing laboratories



4.12 Both these activities build confidence in COVID-19 testing laboratories for their quality diagnosis and are being co-ordinated and monitored periodically. A manuscript entitled “Inter-Laboratory testing as a strategy for external quality assessment for qualitative detection of SARS-CoV-2 by real-time RT-PCR testing in India” has been accepted in the Indian Journal of Medical Research.

Validation of COVID-19 Rapid Antigen Test kits

4.13 There is a myriad of commercially available diagnostic commodities for SARS-CoV-2. These commercial assays varied in their detection technology, ranging from SARS-CoV-2 nucleic acid, antigens, antibody to answer presence of infection. They also varied in detection targets and thus performance characteristics. A network of 28 VRDLs is actively functioning as validation centre for the validation of COVID-19 rapid Antigen detection based test kits including home test kits. A total of 105 COVID-19 rapid antigen test kits and 11 COVID-19 home/self-test kits have been validated so far by this network.



After Donnig the PPE Kit



During RNA Extraction



HI Media InstaNX automated extraction machine



RT-PCR Instruments



4.14 List of Regional Labs:-

- (i) The Postgraduate Institute of Medical Education and Research, Chandigarh
- (ii) ICMR-Regional Medical Research Centre, Dibrugarh
- (iii) ICMR-National Institute of Cholera and Enteric Diseases
- (iv) All India Institute of Medical Sciences, New Delhi
- (v) Government Medical College, Kozhikode
- (vi) All India Institute of Medical Sciences, Bhopal
- (vii) ICMR-Regional Medical Research Centre, Bhubaneswar
- (viii) Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry
- (ix) All India Institute of Medical Sciences, Jodhpur
- (x) All India Institute of Medical Sciences (AIIMS), Patna

4.15 State wise list of VRDLs

State	Level of VRDL	S.No	Name of VRDL	Funded in
Andaman & Nicobar Island	State Level	1	Regional Medical Research Centre (RMRC), Portblair	2018-2019
	Medical College Level	2	Andaman and Nicobar Islands Institute of Medical Sciences, Port Blair	2020-2021
Andhra Pradesh	State Level	3	Guntur Medical College, Guntur	2018-2019
	State Level	4	Sri Venkateswara Institute of Medical Sciences, Tirupati, Andhra Pradesh	2014-2015
	Medical College Level	5	Andhra Medical College, Visakhapatnam	2019-2020
	Medical College Level	6	Government Medical College (GMC), Anantpur	2015-2016
	Medical College Level	7	Rajiv Gandhi Institute of Medical Science (RIMS), Kadappa	2015-2016

State	Level of VRDL	S.No	Name of VRDL	Funded in
	Medical College Level	8	Rangaraya Medical College, Kakinada, Andhra Pradesh	2017-2018
	Medical College Level	9	Siddhartha Medical College, Gunadala, Vijayawada, Andhra Pradesh	2014-2015
	Medical College Level	10	All India Institute of Medical and Sciences, Mangalagiri, Andhra Pradesh	2021-2022
Assam	Regional Level	11	Regional Medical Research Centre, Dibrugarh	2013-2014
	State Level	12	Gauhati Medical College, Gauhati, Assam	2014-2015
	Medical College Level	13	Fakhruddin Ali Ahmed Medical College, Barpeta, Assam	2017-2018
	Medical College Level	14	Jorhat Medical college, Jorhat	2015-2016
	Medical College Level	15	Silchar Medical College, Silchar, Assam	2017-2018
	Medical College Level	16	Tezpur Medical College, Tezpur	2015-2016
Bihar	Regional Level	17	All India Institute of Medical Sciences (AIIMS), Patna	2019-2020
	Medical College Level	18	Darbhanga Medical College, Darbhanga	2017-2018
	Medical College Level	19	Patna Medical College, Patna	2013-2014
	Medical College Level	20	Rajendra Memorial Research Institute of Medical Sciences (RMRIMS), Patna	2019-2020
	Medical College Level	21	S.K. Medical College, Muzaffarpur	2017-2018
	Medical College Level	22	Jawahar Lal Nehru Medical College & Hospital, Bhagalpur	2020-2021
Chandigarh	Regional Level	23	Post Graduate Institute of Medical Education & Research, Chandigarh	2013-2014
	Medical College Level	24	Government Medical College & Hospital, Chandigarh	2017-2018

State	Level of VRDL	S.No	Name of VRDL	Funded in
Chhattisgarh	State Level	25	All India Institute of Medical Sciences (AIIMS), Raipur	2017-2018
	Medical College Level	26	Late Baliram Kashyap (LSBK) Memorial Govt. Medical College, Jagdalpur, Chattisgarh	2014-2015
Delhi	Regional Level	27	All India Institute of Medical Sciences (AIIMS), Delhi	2018-2019
	Medical College Level	28	Lady hardinge Medical College, Delhi	2018-2019
	State Level	29	Maulana Azad Medical college Delhi-	2020-21
	Medical College Level	30	Guru Teg Bahadur Hospital, Delhi	2020-2021
	Medical College Level	31	Dr. Ram Manohar Lohia Hospital and Atal Bihari Vajpayee Institute of Medical Sciences	2020-2021
Goa	Medical College Level	32	Goa Medical College, Goa	2020-2021
Gujarat	State Level	33	B.J. Medical College, Ahmedabad	2013-2014
	Medical College Level	34	Government Medical College, Surat	2018-2019
	Medical College Level	35	Government Medical College, Vadodara	2018-2019
	Medical College Level	36	Government Medical College, Bhavnagar, Gujarat	2019-2020
	Medical College Level	37	Shri M.P. Shah Govt. Medical College, Jamnagar	2013-2014
	Medical College Level	38	Pandit Dindayal Upadhyay Government Medical College, Rajkot, Gujarat	2019-2020
Harayana	Medical College Level	39	Bhagat Phool Singh (BPS) Medical college for Women, Sonipat	2015-2016
	Medical College Level	40	Pt. BD Sharma Post Graduate Institute of Medical Education & Research, Rohtak	2013-2014

State	Level of VRDL	S.No	Name of VRDL	Funded in
Himachal Pradesh	State Level	41	Indira Gandhi Medical College, Shimla	2013-2014
	Medical College Level	42	Dr RadhkrishnanaGovernment Medical College, Hamirpur	2020-2021
	Medical College Level	43	Dr. Rajendra Prasad Government Medical College, Tanda, Himachal Pradesh	2014-2015
	Medical College Level	44	Lal Bahdur Shastri Medical College, Mandi	2020-2021
	Medical College Level	45	Pt. Jawaharlal Nehru Govt. medical College, Chamba, Himachal Pradesh	2021-2022
Jammu & Kashmir	State Level	46	Sher-e-Kashmir Institute of Medical Sciences, Srinagar	2013-2014
	Medical College Level	47	Govt Medical College, Srinagar, Jammu & Kashmir	2016-2017
	Medical College Level	48	Govt. Medical College, Jammu	2013-2014
Jharkhand	Medical College Level	49	MGM Medical College, Jamshedpur	2016-2017
	Medical College Level	50	Rajendra Institute of Medical Sciences (RIMS), Ranchi	2016-2017
	State Level	51	All India Institute of Medical Sciences, Deogarh, Jharkhand	2021-2022
Karnataka	State Level	52	Bangalore Medical College & Research Institute, Bangalore, Karnataka	2014-2015
	Medical College Level	53	Government Medical College, Mysore, Karnataka	2014-2015
	Medical College Level	54	Gulbarga Institute of Medical Sciences, Gulbarga, Karnataka	2016-2017
	Medical College Level	55	Hassan Institute Of Medical Sciences (HIMS), Hassan	2015-2016

State	Level of VRDL	S.No	Name of VRDL	Funded in
	Medical College Level	56	Karnataka Institute of Medical Science Hubballi	2020-2021
	Medical College Level	57	Shimoga Institute of Medical Sciences, Shimoga, Karnataka	2016-2017
	Medical College Level	58	Vijayanagar Institute of Medical Sciences (VIMS), Bellary	2016-2017
Kerala	Regional Level	59	Government Medical College (GMC), Kozhikode	2018-2019
	State Level	60	National Institute of Virology (NIV) Field Unit, Kerala	2018-2019
	Medical College Level	61	Government Medical College, Thrissur	2016-2017
	Medical College Level	62	Government Medical College, Trivandrum, Kerala	2014-2015
Madhya Pradesh	Regional Level	63	All India Institute of Medical Sciences, Bhopal, Madhya Pradesh	2014-2015
	State Level	64	National Institute of Research In Tribal Health (NIRTH), Jabalpur	2018-2019
	Medical College Level	65	Bundelkhand Medical College, Sagar, Madhya Pradesh	2018-2019
	Medical College Level	66	Gajra Raja Medical College, Gwalior, Madhya Pradesh	2016-2017
	Medical College Level	67	MGM Medical College, Indore, Madhya Pradesh	2016-2017
	Medical College Level	68	Shyam Shah Medical College, Rewa, Madhya Pradesh	2017-2018
Maharashtra	State Level	69	Govt Medical College (GMC), Nagpur	2019-2020
	Medical College Level	70	Dr Vaishampayan Memorial (VM) Government Medical College, Solapur, Maharashtra	2019-2020

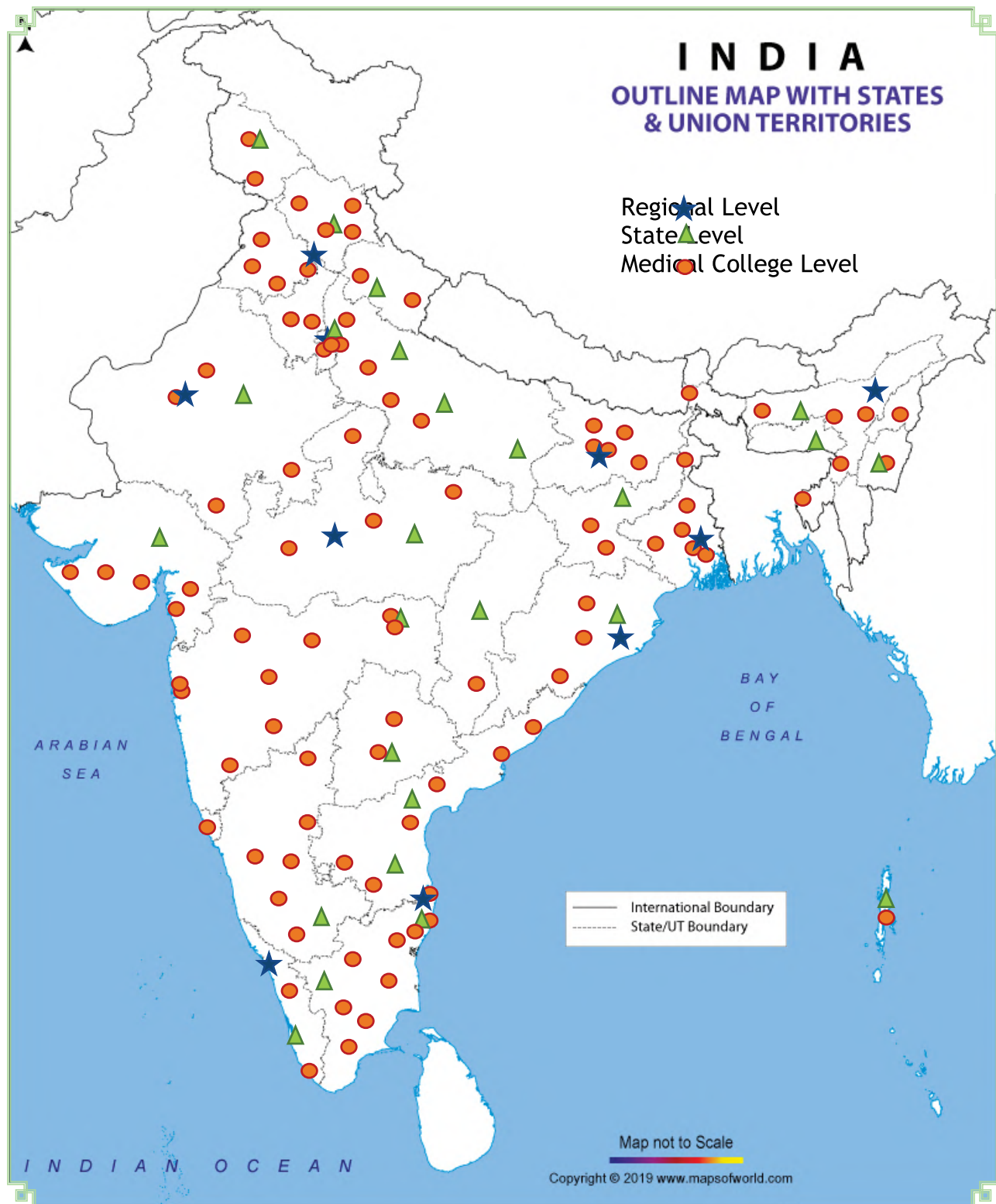
State	Level of VRDL	S.No	Name of VRDL	Funded in
	Medical College Level	71	G.S Seth Medical college and KEM Hospital, Mumbai	2018-2019
	Medical College Level	72	Government Medical College (GMC), Aurangabad	2019-2020
	Medical College Level	73	Government Medical College, Akola	2019-2020
	Medical College Level	74	Government Medical College, Miraj, Sangli	2017-2018
	Medical College Level	75	Indira Gandhi Medical College, Nagpur, Maharashtra	2014-2015
	Medical College Level	76	Kasturba Hospital for Infectious Disease, Mumbai, Maharashtra	2018-2019
	Medical College Level	77	Shri Bhausahab Hire Government Medical College & Hospital, Dhule	2019-2020
	Medical College Level	78	AIIMS, Nagpur	2020-2021
Manipur	State Level	79	Regional Institute of Medical Sciences (RIMS), Imphal	2016-2017
	Medical College Level	80	Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Imphal, Manipur	2014-2015
Meghalaya	State Level	81	North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences (NEIGRIHMS), Shillong	2013-2014
Mizoram	Medical College Level	82	Zoram Medical College, Mizoram	2020-2021
Odisha	Regional Level	83	Regional Medical Research Center (RMRC), Bhubaneswar	2017-2018
	State Level	84	Srirama Chandra Bhanja (SCB) Medical College, Cuttack	2015-2016
	State Level	85	AIIMS, Bhubaneswar	2020-2021
	Medical College Level	86	Saheed Laxman Nayak Medical College & Hospital, Koraput, Odisha (SLNMCH)	2020-2021

State	Level of VRDL	S.No	Name of VRDL	Funded in
	Medical College Level	87	Veer Surendra Sai Institute of Medical Sciences and Research, Burla, Sambalpur, Odisha	2020-2021
	Medical College Level	88	Maharaja Krishna Chandra Gajapati Medical College and Hospital, Brahmapur.	2021-2022
Puducherry	Regional Level	89	Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry	2014-2015
	Medical College Level	90	Indira Gandhi Medical College & Research Institute, Puducherry	2016-2017
Punjab	Medical College Level	91	Govt. Medical College, Amritsar	2013-2014
	Medical College Level	92	Govt. Medical College, Patiala, Punjab	2014-2015
	Medical College Level	93	Guru Gobind Singh Medical College, Faridkot	2020-2021
Rajasthan	Regional Level	94	All India Institute of Medical Sciences (AIIMS), Jodhpur, Rajasthan	2017-2018
	State Level	95	Sawai Man Singh (SMS) Medical College, Jaipur	2015-2016
	Medical College Level	96	Jhalawar medical college, Jhalawar	2016-2017
	Medical College Level	97	Ravindra Nath Tagore (RNT) Medical College, Udaipur	2016-2017
	Medical College Level	98	S N Medical College, Jodhpur Rajasthan	2014-2015
	Medical College Level	99	Sardar Patel Medical College (SPMC) Bikaner	2016-2017
	Medical College Level	100	Govt. Medical College Kota	2021-2022
Tamil Nadu	State Level	101	Coimbatore Medical College, Coimbatore	2016-2017

State	Level of VRDL	S.No	Name of VRDL	Funded in
	State Level	102	The King Institute of Preventive Medicine and Research (KIPM&R), Chennai	2016-2017
	Medical College Level	103	Government Medical College, Theni, Tamil Nadu	2014-2015
	Medical College Level	104	Government Medical College, Thiruvavur, Tamil Nadu	2018-2019
	Medical College Level	105	Government Medical College, Villupuram, Tamil Nadu	2018-2019
	Medical College Level	106	Government Mohan Kumaramangalam Medical College, Salem	2016-2017
	Medical College Level	107	Madras Medical College, Chennai	2016-2017
	Medical College Level	108	Madurai Medical College, Madurai, Tamil Nadu	2014-2015
	Medical College Level	109	Tirunelveli Medical College, Tirunelveli	2016-2017
	Medical College Level	110	ICMR-National Institute for Research in Tuberculosis, Chennai	2021-2022
Telangana	State Level	111	Gandhi Medical College, Telangana	2015-2016
	Medical College Level	112	Kakatiya Medical College, Warangal, Telangana	2017-2018
	Medical College Level	113	Osmania Medical College, Hyderabad	2013-2014
Tripura	Medical College Level	114	Government Medical College, Agartala	2014-2015
Uttar Pradesh	State Level	115	Banaras Hindu University (BHU), Varanasi	2016-2017
	State Level	116	King George's Medical University (KGMU), Lucknow	2015-2016
	Medical College Level	117	Jawaharlal Nehru Medical College (JNMC), Aligarh	2015-2016

State	Level of VRDL	S.No	Name of VRDL	Funded in
	Medical College Level	118	Uttar Pradesh Rural Institute of Medical Sciences & Research, Saifai, Etawah, UP	2015-2016
	State Level	119	ICMR-Regional Medical Research Centre, Gorakhpur	2020-2021
	Medical College Level	120	All India Institute of Medical Science Raebareli, Uttar Pradesh	2021-2022
	Medical College Level	121	Government Institute of Medical Sciences, Greater Noida, Uttar Pradesh	2021-2022
Uttarakhand	State Level	122	All India Institute of Medical Sciences (AIIMS) Rishikesh	2019-2020
	Medical College Level	123	Doon Medical College, Dehradun	2019-2020
	Medical College Level	124	Govt. Medical College, Haldwani, Uttarakhand	2015-2016
West Bengal	Regional Level	125	ICMR Virus Unit, National Institute of Cholera & Enteric Diseases, Kolkata	2014-2015
	Medical College Level	126	Burdwan Medical College, Burdwan	2020-2021
	Medical College Level	127	Institute of Post Graduate Medical Education & Research (IPGMER), Kolkata	2015-2016
	Medical College Level	128	Malda Medical College, Malda	2018-2019
	Medical College Level	129	Midnapore Medical College, Midnapore, West Bengal	2016-2017
	Medical College Level	130	Murshidabad Medical college , Murshidabad	2016-2017
	Medical College Level	131	North Bengal Medical College, Darjeeling	2016-2017
	Medical College Level	132	RG Kar Medical College, Kolkata	2018-2019

Geographical spread of VRDL Network



CHAPTER

5

DEVELOPMENT OF TOOLS/ SUPPORT TO PREVENT OUTBREAKS & EPIDEMICS

During the 12th Plan period, a provision for revolving fund of Rs. 85 crore for 5 years was approved to facilitate rapid mobilization in the event of outbreak/disaster response to infectious disease outbreaks or natural/man-made disasters. The purpose of this budget line was to provide support in outbreaks management in coordination with relevant departments of MoHFW.

In the year 2021, the said budget line was appraised as a central sector scheme entitled “DEVELOPMENT OF TOOLS/ SUPPORT TO PREVENT OUTBREAKS & EPIDEMICS” for implementation during 15th finance commission period (2021-22 to 2025-26), with the budget provision of Rs. 50.71 crores for five years.

The aim and objectives of the scheme is to specially facilitate focused research to assist in dealing with emerging and re-emerging diseases, development of diagnostics kits, formulation of case management modules and preventive strategies, to provide the labs with essential kits, diagnostics and training of the available staff in times of National crisis. A Resource Centre is also established at National Institute of Virology (NIV), Pune which is envisaged to provide training, capacity building, and quality control and to ensure quality assurance of functional VRDLs. The scheme is completely need based and funds are sanctioned to various Medical Colleges / Institute to cater any outbreak situation.

Budget to the tunes of Rs. 15.0 crores have been approved for this financial year 2021-2022.

The financial achievements of the Scheme are given in the table below:

Year	BE (Rs. In Cr.)	RE (Rs. In Cr.)	Actual Exp. (Rs. In Cr.)
2021-2022	15.00	15.00	9.09 (upto 31/12/2021)

Achievements	Exp. (in Rs. Crore)
<u>Support to VRDLs for staff</u>	1.215
Gauhati Medical College	
Sri Venkateswara Institute of Medical Sciences, Tirupati	
Patna Medical College, Patna	
JNIMS Imphal	
GMC, Theni	

Achievements	Exp. (in Rs. Crore)
Data Mining Centre- National Institute of Epidemiology (NIE), Chennai.	0.49872
To combat Nipah outbreak (Kozhikode, Kerala)	0.3564
Supply of Arboviralkits to VRDL Network (Dengue, ChikV, JE)	2.0739
Measles Rubella Laboratory Network-India (NIV Mumbai Unit)	2.335774
Supply of Influenza diagnostics to VRDL Network	1.05
Resource Centre VDL (NIV Pune)	1.54492



During training session at MCC, NIV, Pune, Members from VRDL Miraj, with other participants and RC-VRDL Staff



Lab Members from left to right, Ms. Naziya Mujawar (Research Assistant), Dr. Datta Kumbhar (Research Scientist-Medical has resigned in Nov-2020), Dr. Sandeep A Walujkar (Research Scientist-NM), Mrs. Pooja V Ambi (Lab Technician), Ms. Sheetal Kolekar (Lab Technician)

*Photo taken after completion of 1 lac covid-19 RT-PCR tests, total tests completed till now are 5,53,685

CHAPTER

6

ESTABLISHMENT OF MULTI DISCIPLINARY RESEARCH UNITS (MRUs) IN GOVERNMENT MEDICAL COLLEGES/ RESEARCH INSTITUTES

6.1 Health research is predominantly carried out in the medical colleges cum hospitals and institutes providing education in allied subjects. Medical colleges are the backbone of both medical education and providing health care services to patients. They are also expected to set the trends in the thinking process and innovations to improve the understanding of the diseases and their management. However, over the years it has been noticed that the majority of medical colleges have confined themselves to routine patient care and teaching based on conventional methods. Presently, quality medical research is largely confined to a handful of institutes and medical colleges in the country which may be attributable to lack of appropriate infrastructural facilities and motivation for conducting research.

6.2 Therefore, with a view to promote and encourage medical research in the country and provide assistance for appropriate research facilities, Government introduced a central sector umbrella scheme for Infrastructure Development for promotion of Health Research in the year 2013-14 i.e. during the 12th Five Year Plan (2012-13 to 2016-17). The umbrella scheme has 02 sub-schemes namely (i) **establishing Multidisciplinary Research Units (MRUs) in Government Medical Colleges and Research Institutes**, and (ii) establishing Model Rural Health Research Units (MRHRUs) in rural areas under the mentorship of ICMR institutes.

6.3 The scheme was extended from 2017-18 to 2019-20 to be co-terminus with the 14th Finance Commission Period. Subsequently, Department of Expenditure vide its Notification No.42(02)/PF-II/2014 dated 10.01.2020 approved an interim extension to all ongoing schemes till 31.03.2021 or till the date of recommendations of 15th Finance Commission came into effect, whichever was earlier.

6.4 The Standing Finance Committee chaired by Secretary (DHR) in its meeting on 15.03.2021 appraised the scheme and subsequently, the competent authority approved it for continuation during the period of 15th Finance Commission (2021-22 to 2025-26) with the financial outlay of Rs. 288.11 crore for MRUs.

Objectives of the Scheme

6.5 The scheme aims to provide infrastructural support, in terms of civil works, equipment and recurring expenditure, to carry out research focused on non-communicable diseases, to various Govt. medical colleges across the country in phased manner. Other need based projects may, however, be undertaken as warranted and with the approval of the competent authority. The main objectives of the scheme are:

- Undertaking clinical trials by MRUs.
- Undertaking multi-centric research projects by MRUs in medical colleges, research institutes etc.
- Encouraging and strengthening research environment in medical colleges.
- Bridging infrastructural gap inhibiting health research in the medical colleges/research institutes.
- Capacity building and human resource development in the field of health research.
- Ensuring geographical spread of health research infrastructure in medical colleges/research institutes across the country.
- Improving overall health status of the population by creating evidence-based application of diagnostic procedures/processes/methods.

6.6 Approval Mechanism

- (i) Proposals for setting up MRUs are submitted by the Heads of government medical colleges/ research institutes to the Department of Health Research as per the prescribed format.
- (ii) These are considered by the Technical Evaluation Committee (TEC) of Experts and its recommendations are forwarded to the Approval Committee.
- (iii) The proposals recommended by TEC are considered for approval by the Approval Committee.



Meeting of Technical Evaluation Committee (TEC)

Funding Norms

6.7 The approved MRUs are eligible for one time **non-recurring grant-in-aid** for (i) civil construction, and (ii) purchase of equipments, and **recurring grant** for (i) salaries, (ii) contingencies/ consumables /training etc. as per the following norms:

(Rs. Crore)

Non-Recurring		Recurring (per annum)	
Civil Construction	0.25	Salary	0.28
Equipment	*2.00 (to be released in two installments of Rs.1 crore each)	Contingencies/ Consumables/ Training, etc.	0.20

** Proposals for grants in excess of Rs.2.00 crore for purchase of equipment recommended by the Medical College/LRAC may be considered by the Department with the approval of the Secretary (DHR) on case to case basis taking into account the merits of the proposal.*

6.8 The operational mechanism for the MRUs involving execution of civil works, procurement and installation of equipment, selection and positioning of contractual staff sanctioned under the scheme is managed under the supervision of the Head of the medical college.

Operational Mechanism

6.9 The concerned State/medical colleges devise suitable internal mechanism for speedy execution of the civil works, procurement & installation of equipments, selection & posting of requisite core staff with the active involvement of the State Health Department and in consultation with DHR. This involves:

- (i) Signing of tripartite Memorandum of Agreement between the Department of Health Research, State Health Department and the medical college/research institute.
- (ii) Finalisation of layouts/maps for establishing the MRU.
- (iii) Tendering and hiring the agencies for construction/renovation of space provided for the setting up of MRU.
- (iv) Tendering and procuring equipment and ensuring their maintenance.
- (v) Engaging contractual staff for MRU.

6.10 Staff Structure

(i) PMIU in DHR

In Department of Health Research, a Programme Management & Implementation Unit (PMIU) consisting of regular government/contractual staff looks after the MRU related activities like policy formulation, monitoring, budgetary control etc.

Progress of research work of MRUs is closely and regularly monitored by DHR and an Expert Committee of DHR. Besides, visits by experts and officials of DHR are also undertaken to have on the spot view of progress of the units. MRUs are also subject to all the prescribed internal/statutory audit checks and inspections etc.

Composition of PMIU in DHR is as under:

S.No.	Designation	No. of posts
1.	Project Manager	1
2.	Finance Manager/Consultant Finance & Accounts	1
3.	Scientist C (Medical)	2
4.	Scientist C (Non-Medical)	
5.	Data Entry Operator	2
6.	Multi Tasking Staff	1

Note: PMIU is common for both MRU and MRHRU schemes.

(ii) Staff in MRUs

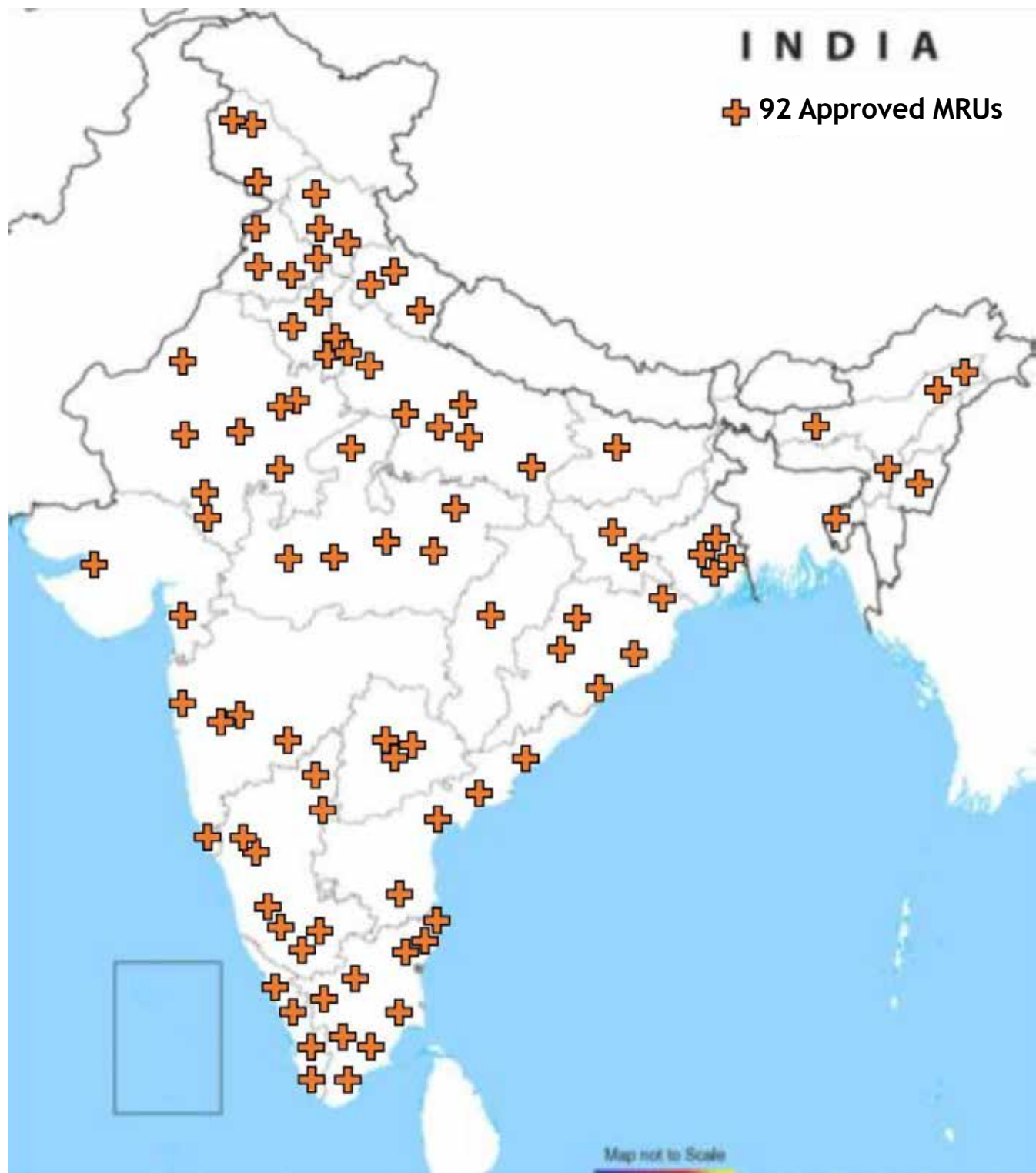
S. No.	Designation	No. of Posts
1.	Research Scientist-II (Scientist 'C')	1
2.	Research Scientist- I (Scientist 'B')	1
3.	Lab Technician	2
4.	Lab Assistant/ DEO (Grade 'A')	1

Local Research Advisory Committees (LRACs)

6.11 For operating the MRUs in medical colleges/research institutes, Local Research Advisory Committees (LRACs) are constituted which consider and approve research proposals received from different departments of the colleges/research institutes. LRAC also monitors progress of research proposals in the college. It works as recommendatory body for all proposals of the medical college to be pursued through its MRU. Composition of LRAC is as under:

1.	Chairperson	External Medical Expert, preferably Professor level from reputed Research Institution/University
2.	Co-Chairperson	
3.	Three Clinicians/ Academicians	One External and Two Internal with expertise in Non-Communicable Diseases - one Expert specializing in the disease identified in Research Project.
4.	One nominee of State Health/ Medical Education Deptt	
5.	One nominee from ICMR HQ or nearest ICMR Institute.	
6.	Member Secretary	Nodal Officer, MRU

Distribution of Multi-Disciplinary Research Units in Government Medical Colleges



Physical Achievements

6.12 Since the inception of the scheme in 2013-14, following 92 MRUs have been sanctioned till 31.12.2021.

S. No	State	Medical College/Research Institute
1.	Andhra Pradesh (4)	Siddhartha Medical College, Vijaywada
2.		Rangaraya Medical College, Kakinada
3.		Andhra Medical College, Visakhapatnam
4.		Sri Venkateswara Institute of Medical Sciences, Tirupati
5.	Assam (4)	Silchar Medical College and Hospital, Silchar
6.		Jorhat Medical College, Jorhat
7.		Fakhruddin Ali Ahmed Medical College, Barpeta
8.		Assam Medical college and Hospital, Dibrugarh
9.	Bihar (1)	Indira Gandhi Institute of Medical Sciences, Patna
10.	Chandigarh (1)	Government Medical College, Chandigarh
11.	Chhattisgarh (1)	Pt. JNM Medical College, Raipur
12.	Delhi (NCT) (3)	University College of Medical Sciences
13.		Vallabh Bhai Patel Chest Institute
14.		Maulana Azad Medical College
15.	Goa (1)	Goa Medical College, Panaji
16.	Gujarat (2)	Shri M.P. Shah Medical College, Jamnagar
17.		Surat Municipal Institute of Medical Education & Research, Surat
18.	Haryana (2)	Pt. B. D. Sharma Post Graduate Institute of Medical Sciences, Rohtak
19.		Kalpana Chawla Govt. Medical College and Hospital, Karnal
20.	Himachal Pradesh (3)	Indira Gandhi Medical College, Shimla
21.		Dr. Rajendra Prasad Govt. Medical College, Tanda, Kangra
22.		Dr. Radha Krishnan Govt. Medical College, Hamirpur
23.	J & K (3)	Govt. Medical College, Jammu
24.		Govt. Medical College, Srinagar

S. No	State	Medical College/Research Institute
25.		Sher-i-Kashmir Institute of Medical Sciences, Srinagar
26.	Jharkhand (2)	Mahatma Gandhi Memorial Medical College, Jamshedpur
27.		Rajendra Institute of Medical Sciences, Ranchi
28.	Karnataka (8)	Dharwad Institute of Medical Sciences, Dharwad
29.		Mandya Institute of Medical Sciences, Mandya
30.		Karnataka Institute of Medical Sciences, Hubli
31.		Shimoga Institute of Medical Sciences, Shimoga
32.		Gulbarga Institute of Medical Sciences, Kalaburagi
33.		Raichur Institute of Medical Sciences, Raichur
34.		Mysore Medical College & Research Institute, Mysore
35.		Hassan Institute of Medical Sciences, Hassan
36.	Kerala (4)	Govt. Medical College, Thiruvananthapuram
37.		Govt. Medical College, Kozhikode
38.		Govt. Medical College, Kottayam
39.		Govt. Medical College. Thrissur
40.	Madhya Pradesh (6)	S.S. Medical College, Rewa
41.		Netaji Subhash Chandra Bose Medical College, Jabalpur
42.		M.G.M. Medical College, Indore
43.		Gandhi Medical College, Bhopal
44.		GR Medical College, Gwalior
45.		Bundhelkhand Govt. Medical College, Sagar
46.	Maharashtra (4)	Seth G.S Medical College & KEM Hospital, Mumbai
47.		Dr. Vaishampayan Memorial Government Medical College, Solapur
48.		Armed Forces Medical College, Pune
49.		B.J. Government Medical College, Pune
50.	Manipur (1)	Regional Institute of Medical Sciences, Imphal
51.	Odisha (5)	S.C.B. Medical College, Cuttack
52.		Veer Surendra Sai Institute of Medical Science & Research, Burla

S. No	State	Medical College/Research Institute
53.		M.K.C.G. Medical College, Berhampur
54.		Bhima Bhoi Medical College & Hospital, Balangir
55.		Pandit Raghunath Murmu Medical College & Hospital, Baripada
56.	Punjab (3)	Govt. Medical College, Amritsar
57.		Govt. Medical College, Patiala
58.		Guru Gobind Singh Medical College & Hospital, Faridkot
59.	Rajasthan (8)	Dr. Sampurnanand Medical College, Jodhpur
60.		Government Medical College, Kota
61.		Sardar Patel Medical College and Associated Group of PBM Hospitals, Bikaner
62.		Jawaharlal Nehru Medical College, Ajmer
63.		Sawai Man Singh Medical College, Jaipur
64.		Rabindranath Tagore Medical College, Udaipur
65.		Rajasthan University of Health Sciences, Jaipur
66.		Govt. Medical College, Dungarpur
67.	Tamil Nadu (9)	Madras Medical College, Chennai
68.		Tirunelveli Medical College, Tirunelveli
69.		Coimbatore Medical College, Coimbatore
70.		Dr. ALM Post Graduate Institute of Basic Medical Sciences, Taramani
71.		Thanjavur Medical College, Thanjavur
72.		Govt. Mohan Kumaramangalam Medical College, Salem
73.		Govt. Theni Medical College, Theni
74.		Chengalpattu Medical College, Chengalpattu
75.		Madurai Medical College, Madurai
76.	Telangana (3)	Osmania Medical College, Hyderabad
77.		Gandhi Medical College, Secunderabad
78.		Nizam's Institute of Medical Sciences, Hyderabad
79.	Tripura (1)	Agartala Govt. Medical College, Agartala

S. No	State	Medical College/Research Institute
80.	Uttar Pradesh (6)	Ganesh Shankar Vidyarthi Memorial Medical College, Kanpur
81.		King George Medical University, Lucknow
82.		Institute of Medical Sciences, Banaras Hindu University, Varanasi
83.		Uttar Pradesh University of Medical Sciences, Saifai, Etawah
84.		Government Institute of Medical Sciences, Greater NOIDA
85.		All India Institute of Medical Sciences, Raebareli
86.	Uttarakhand (3)	Govt. Medical College, Haldwani, Nainital
87.		Veer Chandra Singh Garhwali Govt. Institute of Medical Science & Research, Srinagar
88.		All India Institute of Medical Sciences, Rishikesh
89.	West Bengal (4)	R.G.Kar. Medical College & Hospital, Kolkata
90.		Medical College & Hospital, Kolkata
91.		Institute of Post Graduate Medical College Education & Research, Kolkata
92.		Nil Ratan Sircar Medical College, Kolkata

Note: Of the 92 MRUs sanctioned, 06 are in the north-eastern region (04 in Assam, 01 in Manipur and 01 in Tripura).

6.13 Physical Targets for Establishing new MRUs during 2021-22 to 2025-26

Year	No. of MRUs to be Established
2021-22	*06
2022-23	06
2023-24	06
2024-25	06
2025-26	06

** Target of establishing 06 MRUs in 2021-22 has been achieved*

Note: The proposals for establishing new MRUs are considered and approved on first come first served basis subject to their fulfilling prescribed guidelines, rules and procedures. The geographical spread of these units is also kept in view.

6.14 Financial Achievements

(Rs. crore)

Year	Budget Estimates (BE)	Revised Estimates (RE)	Actual Expenditure
2013-14	45.00	37.10	36.25
2014-15	80.00	31.00	31.00
2015-16	45.50	28.00	25.20
2016-17	24.25	24.25	24.25
2017-18	36.00	45.00	45.00
2018-19	50.00	37.00	36.00
2019-20	58.00	55.00	55.00
2020-21	60.00	58.00	52.80
2021-22	60.00	51.00	27.01 (Expenditure from 01.04.2021 to 31.12.2021)
			23.99 (Estimated expenditure from 01.01.2022 to 31.03.2022)
2022-23	60.00	-	-

6.15 As per the reports received from medical colleges and research institutes for the year 2021-22 (upto 31.12.2021), following 530 research studies/projects are underway on different aspects of non-communicable diseases (NCDs) such as cardiovascular disease, hypertension, maternal & child health, diabetes, mental disorder etc.:

S. No.	MRUs in Medical Colleges/Research Institutes	Research Proposals
1	Institute of Post Graduate Medical Education & Research, Kolkata, West Bengal	9
2	Rajendra Institute of Medical Sciences, Ranchi, Jharkhand	2
3	Madras Medical College, Chennai, Tamil Nadu	7
4	Karnataka Institute of Medical Sciences, Hubli, Karnataka	3
5	Fakhruddin Ali Ahmed Medical College, Barpeta, Assam	1
6	Sri Venkateswara Institute of Medical Sciences, Tirupati, Andhra Pradesh	2
7	Tirunelveli Medical College, Tirunelveli, Tamil Nadu	39
8	Mahatma Gandhi Memorial Medical College, Jamshedpur, Jharkhand	6
9	Maulana Azad Medical College, New Delhi	11
10	Government Medical College, Chandigarh (U.T.)	21

S. No.	MRUs in Medical Colleges/Research Institutes	Research Proposals
11	Mysore Medical College & Research Institute, Mysore, Karnataka	4
12	Vallabh Bhai Patel Chest Institute, Delhi	4
13	Ganesh Shankar Vidyarthi Memorial Medical College, Kanpur, Uttar Pradesh	12
14	Pt. JNM Medical College, Raipur, Chhattisgarh	1
15	King George Medical University, Lucknow, Uttar Pradesh	29
16	Osmania Medical College, Hyderabad, Telangana	7
17	Coimbatore Medical College, Coimbatore, Tamil Nadu	4
18	University College of Medical Sciences, Delhi	7
19	Veer Surendra Sai Institute of Medical Science & Research, Burla, Odisha	9
20	M.K.C.G. Medical College, Berhampur, Odisha	4
21	Chengalpattu Medical College, Chengalpattu, Tamil Nadu	13
22	Shimoga Instt. Of Medical Sciences, Shimoga, Karnataka	3
23	Guru Gobind Singh Medical College & Hospital, Faridkot, Punjab	19
24	All India Institute of Medical Sciences, Rishikesh, Uttarakhand	8
25	Government Medical College, Thiruvananthapuram, Kerala	9
26	Dr. ALM Post Graduate Institute of Basic Medical Sciences, Taramani, Tamil Nadu	36
27	Indira Gandhi Institute of Medical Sciences, Patna, Bihar	8
28	Government Medical College, Kozikhode, Kerala	2
29	Government Medical College, Srinagar, J & K	7
30	Ravindra Nath Tagore Medical College, Udaipur, Rajasthan	3
31	Institute Of Medical Sciences Banaras Hindu University, Varanasi, Uttar Pradesh	5
32	Shri M.P. Shah Medical College, Jamnagar, Gujarat	15
33	Silchar Medical College and Hospital, Silchar, Assam	4
34	Indira Gandhi Medical College, Shimla, Himachal Pradesh	3
35	Pt. B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana	3
36	Sardar Patel Medical College, Bikaner, Rajasthan	5

S. No.	MRUs in Medical Colleges/Research Institutes	Research Proposals
37	Veer Chandra Singh Garhwali Govt. Institute of Medical Science & Research, Srinagar, Uttarakhand	4
38	Andhra Medical College, Visakhapatnam, Andhra Pradesh	16
39	Jorhat Medical College, Jorhat, Assam	5
40	Dr. R.P. Govt. Medical College, Kangra, Tanda, Himachal Pradesh	4
41	Seth G.S Medical College & K.E.M. Hospital, Mumbai, Maharashtra	12
42	S.S. Medical College, Rewa, Madhya Pradesh	9
43	Agartala Govt. Medical College, Agartala, Tripura	8
44	Govt. Medical College, Haldwani (Nainital), Uttarakhand	3
45	Armed Forces Medical College, Pune, Maharashtra	16
46	Hassan Institute of Medical Sciences, Hassan, Karnataka	2
47	Dharwad Institute of Medical Sciences, Dharwad, Karnataka	10
48	Netaji Subhash Chandra Bose Medical College, Jabalpur, Madhya Pradesh	2
49	Nizam's Institute of Medical Sciences, Hyderabad, Telangana	2
50	Gandhi Medical College, Secunderabad, Telangana	32
51	Siddhartha Medical College, Vijayawada, Andhra Pradesh	2
52	Regional Institute of Medical Sciences, Imphal, Manipur	7
53	R.G. Kar Medical College & Hospital, Kolkata, West Bengal	9
54	Govt. Theni Medical College, Theni, Tamil Nadu	2
55	Pt. Jawahar Lal Nehru Medical College, Ajmer, Rajasthan	2
56	Surat Municipal Institute of Medical Education & Research, Surat, Gujarat	3
57	S.M.S. Medical College, Jaipur, Rajasthan	17
58	Kalpana Chawla Government Medical College and Hospital, Karnal, Haryana	4
59	Madurai Medical College, Madurai, Tamil Nadu	2
60	Assam Medical College & Hospital, Dibrugarh, Assam	30
61	Govt. Medical College, Kota, Rajasthan	2
	Total	530

As per the feedback received from various medical colleges, establishment of MRUs has resulted in promoting and strengthening of health research environment in medical colleges.

6.16 Salient features of the Scheme introduced with effect from 2021-22:

(i) Clinical trial by MRUs

Existing network/infrastructure of MRUs to be utilised for undertaking clinical trials.

(ii) Multi-Centric Research Projects

Multi-Centric projects recommended by the LRAC/ ICMR Mentoring Institutes/ Competent Authorities and approved by the Approval Committee in DHR will be funded by the Department of Health Research.

(iii) Funding and administration of MRUs by Central Government

As per the revised scheme for the 15th Finance Commission Period (2021-22 to 2025-26), Central Government to administer and bear all the recurring and non-recurring liabilities of the MRUs. In the earlier scheme, the recurring liabilities were to be taken over by the State Government after 5 years of running the MRU.

(iv) Grant for purchase of equipment

In line with the economy measures of the government, grants-in-aid for purchase of equipment has been fixed at Rs. 2.00 crore. Proposals for grants in excess of Rs. 2.00 crore for purchase of equipment recommended by the medical college/LRAC will be considered by the Department with the approval of the Secretary (DHR) on case to case basis taking into account the merits of the proposal.

(v) Increase in grant for salary from Rs. 25.20 lakh to Rs. 28.00 lakh annually.

With a view to maintain parity in the salary of contractual staff of MRUs with the contractual staff of Department of Science & Technology, grants-in-aid for salary has been increased from Rs.25.20 lakh to Rs.28.00 lakh.

(vi) Release of Grant for Salary from the 1st year

Under the earlier guidelines, grants-in-aid for salary was released from the 2nd year of approval of the MRU. However, with a view to facilitate and encourage research from the very beginning of the approval of MRUs, the revised scheme provides for release of grants-in-aid for salary to the contractual staff from the very first year of approval of the MRU, if it is prepared to undertake research projects immediately in the first year of inception with the space, infrastructure and equipment available with them.

(vii) Grants-in-aid for annual maintenance contract

Contingency funds can be utilised by MRUs for executing Annual Maintenance Contract/repair of equipment purchased out of grants-in-aid given by DHR.



Research activities at MRU under Pt. B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak



MRU Dr. RPGMC, Tanda (H.P) - Chemistry Analyzer



MRU, AFMC Pune - Research staff explaining the principles of conventional PCR



MRU, AFMC Pune - Hands-on Workshop on Real-Time PCR for Pathologists in CME



MRU, AFMC Pune - Research staff demonstrating the Techniques used in Molecular Biology

CHAPTER

7

ESTABLISHMENT OF MODEL RURAL HEALTH RESEARCH UNITS (MRHRUs) IN THE STATES

Introduction

7.1 Public health system in India has a wide network of primary centres at the periphery, plus referral, secondary and tertiary level hospitals at district, State and other levels. Over the last more than 70 years, preventive, diagnostic and therapeutic services have been provided through this network managed by States. It has been observed that a big gap exists between Primary Health Centres (PHCs)/ Community Health Centres (CHCs) and tertiary care hospitals with state-of-the-art facilities created by the Centre and also by some of the State Governments. The professionals and policymakers had a general view that modern methods of diagnosis and management cannot be practised at peripheral level.

7.2 Further, wide variations exist in the pattern of diseases prevalent in different geographical areas and local conditions which require development of State/area specific and disease specific strategies to provide better health care facilities, thus ensuring that the modern technology is available to the general public. Transfer of research findings/technologies at the rural level has been found to be major lacuna in providing quality medical services to the rural population.

7.3 To bridge the gap, Department of Health Research rolled out a central sector umbrella scheme for Development of Infrastructure for Health Research in 2013-14, i.e. during 12th Five Year Plan (2012-13 to 2016-17). The umbrella scheme has 02 sub-schemes, namely (i) establishing Multidisciplinary Research Units (MRUs) in Government Medical Colleges and Research Institutes, and (ii) **establishing Model Rural Health Research Units (MRHRUs) in rural areas under the mentorship of ICMR institutes.**

7.4 The scheme was extended from 2017-18 to 2019-20 to be co-terminus with the 14th Finance Commission Period. Subsequently, Department of Expenditure vide its Notification No. 42(02)/PF-II/2014 dated 10.01.2020 approved an interim extension to all ongoing schemes till 31.03.2021 or till the date of recommendations of 15th Finance Commission came into effect, whichever was earlier.

7.5 The Standing Finance Committee chaired by Secretary (DHR) in its meeting on 15.03.2021 appraised the scheme and subsequently the competent authority approved it for continuation during the period of 15th Finance Commission (2021-22 to 2025-26) with the financial outlay of Rs. 192.36 crore for MRHRUs.

7.6 MRHRU scheme is based on the experience of establishing such a unit at Ghatampur under the National Jalma Institute of Leprosy and other Mycobacterial Diseases (ICMR), Agra, where the methods of diagnosis and treatment as well as epidemiology were shown to be workable deep at the grass root rural settings.

7.7 Objectives of the Scheme

- To undertake Clinical Trials by MRHRUs.
- To undertake multi-centric research projects by MRHRUs.
- To create infrastructure for transfer of technology to the rural areas for improving quality of health services.
- To ensure an interface between the new technology developers (researchers in medical institutes; State or Centre), health system operators (Centre or State Health Services) and the beneficiaries (communities in rural areas).
- To ensure geographical spread of health research infrastructure in the country.

7.8 Approval Mechanism

- Proposals for setting up MRHRUs are submitted by the State Health Departments in consultation with mentoring ICMR institute, to the Department of Health Research.
- These are considered by the Technical Evaluation Committee (TEC) of Experts and its recommendations are forwarded to the Approval Committee.
- The proposals recommended by TEC are considered for approval by the Approval Committee.

Funding Norms

7.9 Approved MRHRUs are eligible for one time **non-recurring grant-in-aid** for (i) civil construction and (ii) purchase of equipment, and **recurring grant** for (i) salaries and (ii) contingencies/consumables/training etc. as per the following norms:

(Rs. Crore)

Non-Recurring		Recurring (per annum)	
Civil Construction	2.075 (to be released in two instalments of Rs.1.00 crore and Rs.1.075 crore)	Salary	0.42
Equipment	1.00 (to be released in two instalments of Rs.0.50 crore each)	Contingencies/ Consumables/ Training, etc.	0.50

Operational Mechanism

7.10 ICMR mentoring institute devises a suitable internal mechanism for speedy execution of the civil works, procurement & installation of equipment, selection & posting of requisite staff with the active involvement of the State Health Department and in consultation with DHR. This involves:

- (i) A tripartite Memorandum of Agreement to be signed between the Department of Health Research, State Health Department and the Mentoring Institute of ICMR.
- (ii) Finalisation of layouts/maps for establishing the MRHRU.
- (iii) Tendering and hiring the agencies for construction/renovation of space provided for the setting up of MRHRU.
- (iv) Tendering and procuring equipment
- (v) Engaging contractual staff for MRHRU.

State Government provides land admeasuring 620 sq. meters in close proximity of the PHC/CHC, free of cost, for establishing MRHRU to take care of healthcare requirements mainly of the rural population of that area.

7.11 Staff Structure

(i) PMIU in DHR

In Department of Health Research, a Programme Management & Implementation Unit (PMIU) consisting of regular government/contractual staff looks after the MRHRU related activities like policy formulation, monitoring, budgetary control etc.

Progress of research work of MRHRUs is closely and regularly monitored by DHR and an Expert Committee of DHR. Besides, visits by experts and officials of DHR are also undertaken to have on the spot view of progress of the units. MRHRUs are also subject to all the prescribed internal/statutory audit checks and inspections etc.

Composition of PMIU in DHR is as under:

S.No.	Designation	No. of posts
1.	Project Manager	01
2.	Finance Manager/Consultant Finance & Accounts	01
3.	Administrative Officer	01
4.	Scientist C (Medical)	02
5.	Scientist C (Non-Medical)	
6.	Data Entry Operator	02
7.	Multi Tasking Staff	01

Note: PMIU is common for both MRU and MRHRU schemes.

(ii) Staff in MRHRUs

S. No.	Designation	No. of Posts
1.	Scientist - C (medical)	01
2.	Scientist - C (non-medical)	01
3.	Technical Assistant (statistician)	01
4.	Technical Assistant (research)	01
5.	Assistant Multipurpose	01
6.	Technician - C (lab technician)	01
7.	Data Entry Operator	01
8.	Group-D/MTS	01

Local Research Advisory Committee (LRAC)

7.12 For operating the MRHRU, a Local Research Advisory Committee (LRAC) is constituted which considers and approves research proposals received from State government and ICMR mentoring institute. LRAC/mentoring institute also monitor the progress of research proposals. The LRAC works as recommendatory body for all proposals of the MRHRU.

1.	Chairperson	Medical person, preferably a Senior Professor level/Director level person of proven record of work in rural translational/implementational research.
2.	Co-Chairperson	
3.	One Microbiologist with experience in diagnostics/epidemiology	
4.	Two Clinicians/Academicians with expertise in Non-communicable diseases (NCDs), one of them having expertise in mental health	
5.	One Academic Paediatrician	
6.	One Academic Obstetrician & Gynaecologist	
7.	Any other Expert depending upon Disease as identified in project	
8.	Principal/Dean	Linked State Govt. Medical College and professor/Head from Linked State Govt. Medical College as Special Invitees.
9.	Director	Medical Education Department of State Govt./Nominee.
10.	Director	Health & Family Welfare Department, State Govt./Nominee

11	Director	Mentor Institute of Indian Council of Medical Research (ICMR)
12	Nodal Officer	Mentor Institute of Indian Council of Medical Research (ICMR)
13	Nominee from DHR	

Physical Achievements

7.13 Since the inception of the scheme, following 28 MRHRUs have been sanctioned till 31.12.2021:

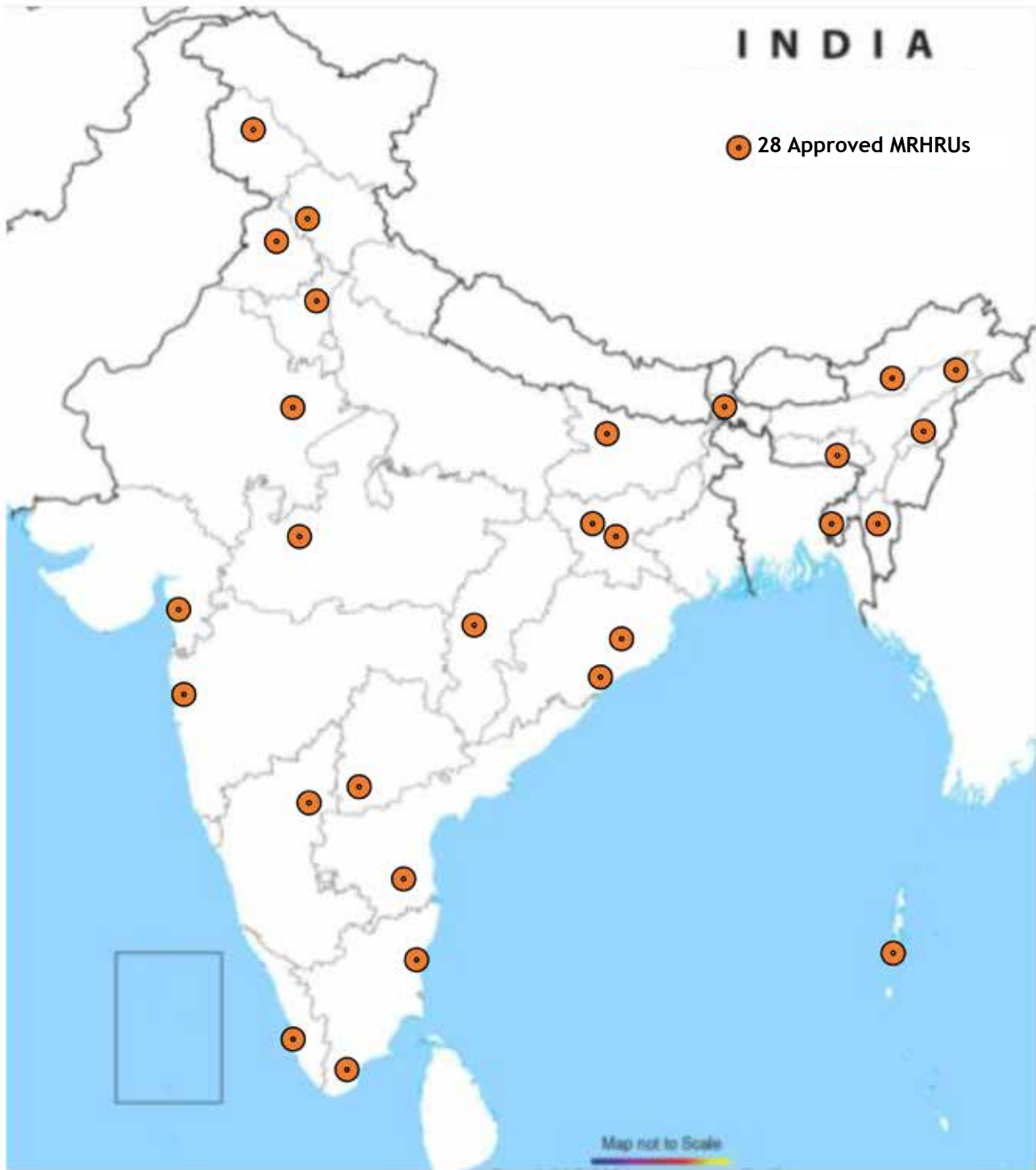
S. No.	State/ Territory	Union	Location of MRHRU	Linked Medical College	ICMR Mentor Institute
1	Andaman & Nicobar Islands		PHC Chouldari, South Andaman District	Andaman & Nicobar Institute of Medical Sciences, Port Blair	ICMR - Regional Medical Research Centre, Port Blair, Andaman & Nicobar Islands
2	Andhra Pradesh		Old RHTC Premises, Chandragiri	S.V. Medical College, Tirupati	ICMR - National Institute of Nutrition, Hyderabad, Telangana
3	Arunachal Pradesh		CHC Sagalee, Papum Pare	Tomo Riba Institute of Health & Medical Sciences (TRIHMS), Neharlagun	ICMR - Regional Medical Research Centre, Dibrugarh, Assam
4	Assam		PHC Chabua	Assam Medical College, Dibrugarh	ICMR - Regional Medical Research Centre, Dibrugarh, Assam
5	Bihar		PHC Kudhani Muzzafarpur	Sree Krishna College and Hospital, Muzzafarpur	ICMR - Rajendra Memorial Research Institute of Medical Sciences, Patna, Bihar
6	Chhattisgarh		CHC Jheet, Patan Block, Durg District	Pt Jawahar Lal Nehru Memorial Medical College, Raipur	ICMR - National Institute of Research In Tribal Health, Jabalpur, Madhya Pradesh
7	Gujarat		RHTC Sachin, Surat	Govt. Medical College, Surat	ICMR - National Institute of Occupational Health, Ahmedabad, Gujarat
8	Haryana		CHC Khotpura, Panipat	Kalapana Chawla Govt. Medical College & Hospital, Karnal	ICMR - National Institute of Cancer Prevention and Research, NOIDA, Uttar Pradesh

S. No.	State/ Territory	Union	Location of MRHRU	Linked Medical College	ICMR Mentor Institute
9	Himachal Pradesh		CHC Haroli, Una	Dr. Rajendra Prasad Govt. Medical College, Tanda, Kangra	ICMR - National Jalma Institute. for Leprosy & other. Mycobacterial Diseases, Agra, Uttar Pradesh
10	Jammu & Kashmir		PHC Khag, Budgam	Govt. Medical College, Srinagar	ICMR - National Institute of Pathology (NIOP), Delhi
11	Jharkhand (2)		CHC Angara, Ranchi	Rajendra Institute of Medical Sciences (RIMS), Ranchi	ICMR - National Institute of Malaria Research, New Delhi & National Institute of Malaria Research, Field Unit Itki, Ranchi, Jharkhand
12			CHC Namkum	Rajendra Institute of Medical Sciences (RIMS), Ranchi	ICMR - Regional Medical Research Centre, Bhubaneswar, Odisha
13	Karnataka		PHC Sirwar, Manvi Taluk, Raichur	Raichur Institute. of Medical Sciences, Raichur	ICMR - National Institute of Traditional Medicine, Belagavi, Karnataka
14	Kerala		CHC Chettikade,	Govt. Medical College, Alappuzha	ICMR - National Institute of Virology, Pune, Maharashtra
15	Madhya Pradesh		PHC Badoni, Datia	GR Medical College, Gwalior	ICMR - National Institute of Research In Tribal Health, Jabalpur, Madhya Pradesh
16	Maharashtra		Sub District Hospital, Dahanu, Thane	Grants Medical College and JJ Group of Hospital, Mumbai	ICMR - National Institute for Research in Reproductive and Child Health, Mumbai, Maharashtra
17	Meghalaya		CHC Sohra, East Khasi Hills	Health Authority of East Khasi Hills District	ICMR - Regional Medical Research Centre, Dibrugarh, Assam
18	Mizoram		PHC Aizwal, Mizoram	Zoram Medical college, Mizoram	ICMR - Regional Medical Research Centre, Dibrugarh, Assam
19	Nagaland		PHC Niuland, Dimapur	PHC Niuland, Dimapur	ICMR - Regional Medical Research Centre, Dibrugarh, Assam

S. No.	State/ Territory	Union	Location of MRHRU	Linked Medical College	ICMR Mentor Institute
20	Odisha (2)		CHC Tigiria	SCB Medical Collge, Cuttak	ICMR - Regional Medical Research Centre, Bhubaneshwar, Odisha
21			CHC Sheragada, Ganjam,	MKCH Medical college, Berhampur	ICMR - Regional Medical Research Centre, Bhubaneshwar, Odisha
22	Punjab		CHC Bhunga, Hoshiarpur	Govt. Medical College, Amritsar	ICMR - National Institute of Pathology, New Delhi
23	Puducherry		CHC Karikalampakkam	Pondicherry Institute of Medical Sciences, Puducherry	ICMR - Vector Control Research Centre, Puducherry
24	Rajasthan		Bhanpur Kalan, Govt. Health Clinic, Jaipur	SMS Medical College, Jaipur	ICMR - National Institute for Implementation Research on Non-Communicable Diseases, Jodhpur, Rajasthan
25	Tamil Nadu		State Rural Health Centre at Tirunelveli	Tirunelveli Medical College, Tirunelveli	ICMR - National Institute of Epidemiology, Chennai, Tamil Nadu
26	Tripura		Kherengbar Hospital, Khumulwng	Agartala Medical College, Agartala	ICMR - Regional Medical Research Centre, Dibrugarh, Assam
27	Telangana		PHC Janampet, Mahabubnagar	Govt. Medical College, Mahabubnagar	ICMR - National Institute of Nutrition, Hyderabad, Telangana
28	West Bengal		North Bengal Medical College (NBMC), Darjeeling (A rural hospital and designated Rural Health Training Centre)	North Bengal Medical College, Darjeeling	ICMR - National Institute of Cholera & Enteric Diseases, Kolkata, West Bengal

Note: Of the 28 MRHRUs sanctioned, 06 are in the north-eastern region (01 each in Arunachal Pradesh, Assam, Meghalaya, Mizoram, Nagaland, and Tripura)

Distribution of Model Rural Health Research Units in the States



7.14 Physical Targets for Establishing new MRHRUs during 2021-22 to 2025-26

Year	No. of MRHRUs to be Established
2021-22	02
2022-23	02
2023-24	02
2024-25	02
2025-26	03

Note: The proposals for establishing new MRHRUs are considered and approved on first come first served basis subject to their fulfilling prescribed guidelines, rules and procedures. The geographical spread of these units is also kept in view.

7.15 Financial Achievements

(Rs. Crore)

Year	Budget Estimates (BE)	Revised Estimates (RE)	Actual Expenditure
2013-14	10.00	12.50	12.40
2014-15	20.00	13.00	13.00
2015-16	10.00	6.50	6.50
2016-17	06.00	6.00	6.00
2017-18	09.00	11.00	8.12
2018-19	13.00	10.00	10.00
2019-20	15.00	19.00	17.50
2020-21	20.00	16.00	11.39
2021-22	20.00	18.00	11.07 (Expenditure from 01.04.2021 to 31.12.2021)
			6.93 (Estimated expenditure from 01.01.2022 to 31.03.2022)
2022-23	20.00	-	-

7.16 As per the reports received from the MRHRUs for the year 2021-22 (upto 31.12.2021), following 58 research studies/projects are underway:

S. No.	Name of MRHRUs	Research Studies
1	MRHRU, Sirwar, Raichur Karnataka, ICMR Mentor Institute - National Institute of Traditional Medicine, Belagavi	1
2	MRHRU, Dahanu, Maharashtra, ICMR Mentor Institute - National Institute for Research in Reproductive and Child Health, Mumbai	8
3	MRHRU, Tirunelveli, Tamil Nadu ICMR Mentor Institute - National Institute of Epidemiology, Chennai	17
4	MRHRU, Jheet, Durg, Chhattisgarh ICMR Mentor Institute - National Institute for Research in Tribal Health Jabalpur, M.P.	5
5	MRHRU, Datia, Madhya Pradesh ICMR Mentor Institute - National Institute for Research in Tribal Health Jabalpur, M.P.	3
6	MRHRU, Bhanpur Kalan, Jaipur, Rajasthan ICMR Mentor Institute - National Institute for Implementation Research on Non-Communicable Diseases, Jodhpur	3
7	MRHRU, Khotpura, Panipat, Haryana ICMR Mentor Institute - National Institute of Cancer Prevention and Research, Noida	2
8	MRHRU, Khumulwng, Tripura ICMR Mentor Institute - Regional Medical Research Centre for North East, Dibrugarh, Assam	1
9	MRHRU, Chandragiri, Andhra Pradesh ICMR Mentor Institute - National Institute of Nutrition, Hyderabad, Telangana	1
10	MRHRU, Bhunga, Punjab ICMR Mentor Institute - National Institute of Pathology, Delhi	7
11	MRHRU, Tigiria, Odisha ICMR Mentor Institute - Regional Medical Research Centre, Bhubaneswar	1
12	MRHRU, Ranchi, Jharkhand ICMR Mentor Institute - National Institute of Malaria Research, New Delhi & National Institute of Malaria Research field unit Itki, Ranchi	4
13	MRHRU, Chabua, Assam ICMR Mentor Institute - Regional Medical Research Centre for North East, Dibrugarh, Assam	4
14	MRHRU, A&N Islands ICMR Mentor Institute - Regional Medical Research Centre, Port Blair	1
	Total	58

7.17 Salient features of the Scheme introduced with effect from 2021-22:

(i) Clinical trial by MRHRUs

Existing network/infrastructure of MRHRUs to be utilised for undertaking clinical trials.

(ii) Multi-Centric Research Projects

Multi-Centric projects recommended by the LRAC/ ICMR Mentoring Institutes/ Competent Authorities and approved by the Approval Committee in DHR will be funded by the Department of Health Research.

(iii) Release of Grant for Salary from the 1st year

Under the earlier guidelines, grants-in-aid for salary was released from the 2nd year of approval of the MRHRU. However, with a view to facilitate and encourage research from the very beginning of the approval of MRHRUs, the revised scheme provides for release of grants-in-aid for salary to the contractual staff from the very first year of approval of the MRHRU, if it is prepared to undertake research projects immediately in the first year of inception with the space, infrastructure and equipment available with them.

(iv) Grants-in-aid for annual maintenance contract

Contingency funds can be utilised by MRHRUs for executing Annual Maintenance Contract/ repair of equipment purchased out of grants-in-aid given by DHR.



Investigation at MRHRU Tirunelveli conducting school health camps as a part of group of studies on school health and preparing a dynamic school cohort



MRHRU Tirunelveli - dedicated Zebrafish Lab with automated breeding and segregation facility with all biosafety facilities for animal modelling and drug studies



MRHRU Tigiria - Investigation through blood culture bottles in BD bactec machine



MRHRU Tigiria - Bacteria identification of blood culture samples

CHAPTER

8

GRANT-IN-AID SCHEME FOR INTER-SECTORAL CONVERGENCE & COORDINATION FOR PROMOTION AND GUIDANCE ON HEALTH RESEARCH

8.1 The Scheme was approved by Cabinet Committee on Economic Affairs (CCEA) on 6th February, 2014. The scheme launched during 2013-14 aims at providing support in the form of grant-in-aid for carrying out research studies to identify the existing knowledge gap and to translate the existing health leads into deliverable products. Special focus is on encouraging innovation, their translation, and implementation by collaboration and cooperation with other agencies by laying special stress on implementation research so that there is a better utilization of available knowledge.

8.2 Continuation of the scheme from 2021-22 to 2025-26 (for 15th Finance Commission Period) has been approved on 18th March 2021 at a total estimated cost of Rs. 435.64 crore, as follows:

(Rs. in Crores)

Year	Physical Targets	Grand Total (including committed liabilities + administrative expenses)
	No. of projects	
2017-18	41	101.86
2018-19	41	99.36
2019-20	41	95.86
2020-21	SFC period extended upto 31.03.2021	
2021-22	25	22.76
Total	148	319.84

8.3: The Scheme has the following components for funding:

(i) Research studies with emphasis on public health:

The objective of this component is to support research studies on diseases burden, risk factors, diagnosis & treatment, etc. of major diseases. The studies are limited to Non-communicable diseases. A total number of 87 studies with the maximum duration of 3 years and cost range between Rs.50 lakhs - Rs.3 crores each were funded under this category during 14th Finance Commission period (i.e. 2017-2018 to 2019-2020) and extended upto 31st March 2021. During 15th Finance Commission Period (i.e. 2021-22 to 2025-26), a total number of 85 studies with the maximum duration of 3 years including 6 studies for cost range between Rs. 50 lakhs - Rs. 3 crores and 1 study for cost range between Rs. 50 lakhs - Rs. 10 crores, are targeted to be funded under this category at a total estimated cost of Rs. 79.25 crores.

(ii) Translational Research Projects:

The objective of this component is to translate the already identified leads into products and processes in the area of human healthcare, through coordination among the agencies involved in basic, clinical and operational research for use in the public health system. A total number of 29 studies with a duration of 1-3 years and cost range of Rs. 50 lakhs - 10 crores were funded under this category during 14th Finance Commission (i.e. 2017-18 to 2019-20) and extended upto 31st March 2021. During 15th Finance Commission Period (i.e. 2021-22 to 2025-26), a total number of 5 studies with the maximum duration of 3 years and cost range between Rs. 3.00 crores - Rs. 10.00 crores, are targeted to be funded under this category at a total estimated cost of Rs. 15.00 crores.

(iii) Inter-sectoral Co-ordination including Funding of Joint Projects

The objective of this component is to promote joint/collaborative research projects with other agencies involved in bio-medical-health research in the country for optimum use of resources and transfer of knowledge. A total number of 6 studies with a duration of 1-3 years and cost range of Rs. 50 lakhs - 10 crores were funded this category during 14th Finance Commission period (i.e. 2017-2018 to 2019-2020) and extended upto 31st March 2021. During 15th Finance Commission Period (i.e. 2021-22 to 2025-26), a total number of 5 studies with the maximum duration of 3 years and cost range between Rs. 50 lakhs - 10.00 crores, are targeted to be funded under this category at a total estimated cost of Rs. 10.00 crores.

8.4 STATUS OF IMPLEMENTATION**Physical Achievement:**

Components of the scheme	No. of Projects sanctioned					
	2017-18	2018-19	2019-20	2020-21	2021-22 (up to 31.12.2021)	2021-22 (estimates upto 31.03.2022)
Research Studies with Emphasis on Public Health	40	2	26	19	5	*
Translational Research	4	-	1	24	38	*
Inter-Sectoral Coordination	3	-	3	-	-	*
Cost-effective analysis	2	-	1	-	-	*
Total	49	2	31	43	43	*

*Subject to shortlisting of new proposals received during 2021-22.

Financial Achievement:

(Rs. in Crore)

Year	Budget Estimate (B.E)	Revised Estimate (R.E)	Actual Expenditure
2017-18	20.00	30.00	28.14
2018-19	35.00	5.00	4.50
2019-20	24.00	16.00	16.00
2020-21	27.00	19.00	15.98
2021-22 (upto 31 st Dec 2021)	27.00	25.00	12.46
2021-22 (estimated expenditure upto Mar 2022)	27.00	25.00	*

*Subject to shortlisting of new proposals received during 2021-22.

CHAPTER

9

Human Resource Development for Health Research

9.1 Introduction (about the scheme and its objectives)

The Human Resource Development Scheme of Department of Health Research is intended to create a pool of talented health research personnel in the country by upgrading skills of faculty of Medical Colleges/Institutes, mid - career Scientists, medical students, etc., by specialized training in priority areas of health research in leading national and international institutions, encourage and support the trainees to develop and take up research projects for addressing critical national and local health problems and financial assistance to Institutions for up- gradation of infrastructure to enable such Institutions to provide training with state of the art technologies.

9.2 The scheme is approved during 15th Finance Commission Period (2021-22 to 2025-26) and support under the program is imparted in following categories:**I. Short Term Fellowship for training in Foreign Institutes/Indian Institute:**

Short Term Fellowship supports for training in Foreign/Indian Institutes in identified areas (1-3 months) to persons employed as regular faculty those who are not above the age of 55 years. A stipend of \$3000 per month for foreign institute and Rs 40,000 per month for Indian institute is being given to the fellows. During the year 2019-20, the programme was transferred to the ICMR for implementation. During 2021-22, fellowships for training in foreign institutes have been kept on hold during Covid-19 pandemic across the world. Applications for training in indian institutes are invited every year through Department of Health Research. In the year 2021-22 (upto 31st Dec 2021), 2 fellowships have been supported under this programme.

II. Long Term Fellowships in India/abroad:

Long Term Fellowship supports for training abroad/Indian Institutions in identified priority areas (6-12 months) is meant for the persons employed as regular faculty and those who are not above the age of 45 years. A stipend of \$3000 per month for foreign institute and Rs 40,000 per month for Indian institute is being given to the fellows. This component has also been transferred to the ICMR for implementation. During 2021-22, fellowships for training in foreign institutes have been kept on hold during Covid-19 pandemic across the world. Applications for training in Indian Institutions are invited every year through Department of Health Research.

III. Start-up grant for fellows undergone long term/short term training supported by DHR:

The Start-up grant, with an average cost of Rs. 30 lakhs per research project, for three years, will be supported. In the year 2021-22 (upto 31st Dec 2021), 7 start-up grants (including 02 new) have been supported under HRD schemewith an average cost of Rs. 30 lakhs per research project, for three years.

IV. Fellowship Programme for Young Scientists:

This fellowships aims to fulfil the objectives of creation of inclination/ attitude of research among the young bright students from the medical colleges/ universities. In the year 2021-22 (upto 31st Dec 2021), 101 fellowships (including 37 new) have been supported under this programme.

V. Fellowship Programme for Women Scientists:

This fellowships aims to encourage women candidates to undertake biomedical research who have break in their career. In the year 2021-22 (upto 31st Dec 2021), 29 fellowships (including 01 new) have been supported under this programme.

VI. Support to Institute for imparting training:

This programme aims to provide support to selected domestic Institutions for providing training in specially designated programmes/ identified priority areas. A grant upto Rs. 50 lakhs for equipments, up-gradation, etc. and a grant of Rs. 10 lakhs per year upto a period of 5 years for recurring expenses and for conducting training programme. Support is also imparted to the institutions with the aim of strengthening of research activities through the establishment of online courses and web-portal on health research for students, faculty and other researchers. This programme also helps prospective institutions and individuals to access resources both financial and technical on research and promote research across the country.

In the year 2021-22 (upto 31st Dec 2021), 5 institutes (including 02 new) have been supported under this programme for imparting training in biomedical research.

VII. Research grant and fellowship to encourage Health Research Personnel [Non-resident Indian (NRI), Persons of Indian Origin (PIO), Overseas Citizen of India (OCI)] serving abroad, to come back to India for undertaking research in identified areas:

This Scheme has been designed to provide contractual research positions to the Indian scientists settled abroad who are willing to come back to India on a fulltime basis or for short duration to pursue medical/ health research in India and take up health research projects in collaboration with Indian scientists, particularly in areas of national priority. In the year 2021-22 (upto 31st Dec 2021), 1 fellowship (new fellowship) has been supported under this programme.

9.3. Major initiatives of the Scheme in 2020-21

- During the year 2021-22 (upto 31st Dec 2021), 102 ongoing fellowships and 43 new fellowships of 2020-21 have been supported.
- During the year 2021-22, the advertisements for call for online proposals under 5 categories of HRD Scheme have been published in the leading newspapers of English, Hindi and all the regional languages across the country. The categories are:
 1. Long Term/Short Term Fellowship for training in Indian Institutes
 2. Fellowship Programme for Young Scientists

3. Fellowship Programme for Women Scientists
4. Support to Institute for imparting training in identified areas
5. Research grant and fellowship to encourage Health Research Personnel [Non-resident Indian (NRI), Persons of Indian Origin (PIO), Overseas Citizen of India (OCI)] serving abroad, to come back to India for undertaking research in identified areas.

*In response, a total number of 284 proposals have been received. The process of screening and shortlisting of these 284 proposals is underway.

9.4. Status of Implementation of the Scheme

The achieved physical and financial targets of the scheme since the financial year 2017-18 are shown as below:

Year-wise Physical Achievement of HRD Scheme

	2017-18	2018-19	2019-20	2020-21	2021-22 (upto 31 st Dec 2021)	2021-22 (estimates upto Mar 2022)
Number of fellowships supported	191	92	200	127	145	20 ongoing proposals + subject to shortlisting of new proposals

Year-wise Financial Achievement of HRD Scheme

(Rs. in Crores)

	2017-18	2018-19	2019-20	2020-21	2021-22 (expenditure upto 31 st Dec 2021)	2021-22 (estimated expenditure upto Mar 2022)
BE	30.00	30.00	33.00	34.00	27.00	27.00
RE	26.00	15.00	27.00	18.00	27.00	27.00
AE	24.28	13.29	27.48	16.32	16.91	10.09

9.5 Significant Achievements of Scheme in 2021-22

- In the financial year 2021-22 (upto 31st Dec 2021), 8 research projects have been completed.
- 38 Research Publications have been published in indexed journals from the projects funded under the scheme.
- Prevailing strains of Orientia species of Scrub typhus were identified in Assam and its genetic relationship studies with that of other established strains worldwide.
- Histopathological evaluation study of renal allograft biopsies was done for the diagnosis of humoral rejection in kidney transplant.

- A natural inhibitor liquiritin was identified which may be served as a potential intervention strategy for preventing pre-term birth caused by low progesterone level.
- Under support to institute category, 128 researchers have been trained and 5 institutes have been supported in the following biomedical areas:

S. No.	Institute	Title/Area
1.	JamiaHamdard Institute of Molecular Medicine, Faculty of Science, JamiaHamdard, Hamdard Nagar, New Delhi	Support to Conduct Training Programme in the area of Modern Biology
2.	ICMR-National Institute of Cancer Prevention & Research (NICPR), Sector-39, Noida	Basic Molecular Biology techniques relevant to cancer research Tissue culture related techniques
3.	School of Public Health, PGIMER, Chandigarh	Support to Conduct Online Courses in Basic Health Economics and Economic Evaluation for Health Technology Assessment
4.	Rajendra Institute of Medical Sciences (RIMS), Ranchi	Support to Conduct Training Programme in the entitle of Short term fellowship program in Good clinical Practices
5.	Sri Ramachandra Institute of Higher Education and Research, Chennai, Tamil Nadu	Support to Conduct Training Programme in the entitle of Workshop On Advanced Molecular Biology Techniques in Dentalgenetic Research

CHAPTER

10

Health Technology Assessment in India (HTAI_n)

Introduction

The Government of India is committed to extend healthcare services to its 1.38 billion population as part of India's Universal Health Coverage (UHC) agenda. The National Health Policy has recommended an increase in public spending on healthcare services from existing 1.15 percent to 2.5 percent of GDP. It notes that this can significantly reduce the out-of-pocket-expenditure of the overall healthcare spending. With such a challenge, it is essential for the government to ensure optimal utilization of existing resources to ensure that the greatest amount of health is generated for every rupee spent. Therefore, Department of Health Research has established a mechanism for Health Technology Assessment for evaluation of appropriateness and cost effectiveness of available and new health technologies in the country as part of research governance mandate of the Department.

10.2 HTA is a multidisciplinary process that summarizes information about the medical, social, economic and ethical issues related to the use of a health technology in a systematic, transparent, unbiased and robust manner. Its aim is to inform the formulation of safe, effective, health policies that are patient focused and seek to achieve best value. In essence, HTA is a process which systematically evaluates health interventions to ensure they represent good value for money.

Health Technology Assessment in India (HTAI_n)

10.3 Health Technology Assessment in India (HTAI_n) is a sub-scheme under the umbrella scheme Human Resource and Capacity Building in the 15th Financial Commission approved for year 2021-22 to 2025-26 under the Department of Health Research (DHR), Ministry of Health & Family Welfare (MoHFW), Government of India to facilitate the process of transparent and evidence-informed decision making in the field of healthcare. HTAI_n is entrusted with the responsibility to analyses health technologies viz. medicines, devices and health programmes for its cost-effectiveness, clinical-effectiveness and equity issues by means of Health Technology Assessment (HTA), and in turn help in decision making for an efficient use of the limited health budget and provide people access to the quality health care reducing their out of pocket expenditures (OOPs) on health.

10.4 The need to establish a Medical Technology Assessment Board (MTAB) was recommended by 12th Plan Working Group on Health Research and also by the Planning Commission (now NITI Aayog) in its 12th Plan document on Social Sector. The Standing Committee of Parliament in its 56th Report on the Examination of Demand for Grant of DHR for the year 2012-13 has emphasized early setting up of MTAB. The National Health Policy, 2017 has also highlighted the importance of HTA by stating 'One important capacity with respect to introduction of new technologies and their uptake into public health programmes is health technology assessment'.

Established in 2017, HTAIIn has extended support to various verticals (e.g Maternal Health, Child Health etc.) of the health ministry at the center and also at state level, in evidence-based decision making.

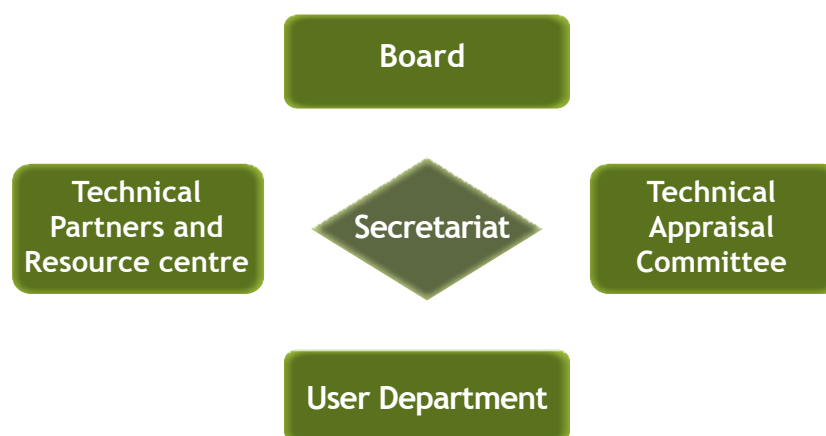
10.5 Objectives and Significance of HTAIIn

- To undertake HTA studies aiming at maximising health in the population, reducing out of pocket expenditure (OOP) and reducing inequity.
- To support the process of decision-making in health care at the Central and State policy level by providing reliable information based on scientific evidence.
- Develop systems and mechanisms to assess new and existing health technologies by a transparent and inclusive process.
- To appraise health interventions and technologies based on available data on resource use, cost, clinical effectiveness, and safety.
- To collect and analyse evidence in a systematic and reproducible way and ensure its accessibility and usefulness to inform health policy.
- Disseminate research findings and resulting policy decisions to educate and empower the public to make better informed decisions for health.

Structure of HTAIIn

10.6 Health Technology Assessment in India (HTAIIn) consists of HTAIIn Secretariat, Board, Technical Appraisal Committee (TAC), Regional Resource Hubs/ Centres (RRCs) and Technical Partners (TPs).

Figure 1: Structure of HTAIIn



HTAIIn Secretariat

10.7 HTAIIn Secretariat is a DHR- in-house body that coordinates between the User Department, TAC, Technical Partners and Resource Centres. Secretariat consist of Scientists, Economists, Health Policy Analyst, Financial Consultants, Programme Manager, Data Entry Operators and Multi-Tasking

Staffs. It provides necessary assistance to the Technical Partners (TPs) and Resource Centres (RRCs) wherever required and monitor the progress of studies being conducted. Secretariat may also undertake topic(s) to study in certain situations. Besides that, secretariat conducts all the TAC and Stakeholders consultation meetings in DHR and ensures transparency at all stages of the study by consultation and regular updates from the Technical Partners and Resource Centres.

Board

10.8 HTAIn Board was set up in 2017, to take final policy decisions on the recommendations of HTA studies. The Board consist of Policy-Makers, Clinicians, Bureaucrats and Experts from different Government Bodies (Central as well as States) etc. Board is the highest decision-making body of HTAIn that endorses/ appraise the TAC approved Outcome Reports/ Recommendation. The Board may also look into the gaps in evidence and instruct for further research. i.e. Board can identify the area that require further research.

Technical Appraisal Committee

10.9 Technical Appraisal Committee (TAC) is a multidisciplinary body with experts drawn from different areas viz economists, clinicians, researchers, social scientists, health policy experts etc. There may be co-opted members in the TAC depending upon the study under consideration by HTAIn. The Committee is invariably headed by an eminent person. It ensures the appraisal of the study at different stages viz. support in analyzing feasibility of topic for HTA, allocation, proposal development, outcome report and recommendations. TAC does the quality assurance and provides overall stewardship to the HTAIn. Till 31st December 2021, twenty-Six (26) TAC meetings have taken place in DHR for the appraisal of the HTA proposals/ Outcome Reports submitted by the TPs/ RRCs and discussing potential challenges HTAIn may face in the Indian scenario such as perspective, equity issues, availability of evidences, etc.

Regional Resource Centres or Resource Hubs/ Centres (RRCs)

10.10 Regional Resource Centres have been established in Government research institutes entrusted with the responsibility to conduct HTA and other multi-centric studies allocated by HTAIn Secretariat. They are identified on the basis of their capacity and previous experience in HTA. DHR provides requisite manpower support to the Regional Resource Centres or Resource Centres/ hubs in order to bridge the gap between Central and the State Governments, assist capacity building, support States located in the vicinity and undertake the studies allocated to them by the Secretariat. The mentor of the Centres liaise with the officials of the State Governments and sensitize them about a need for Health Technology Assessment (HTA) for any health intervention. 16 institutes were already identified to establish the Regional Resource Centres of HTAIn till the year 2020-21 and one more Resource Centre was established in IISc. Bangalore in 2021-22. All the 17 Resource Centres of HTAIn are as follows:

1. Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh.
2. Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Trivandrum
3. National Institute for Research in Reproductive Health (NIRRH), Mumbai
4. National Institute for Research in Tuberculosis (NIRT), Chennai

5. Regional Medical Research Center (RMRC), Bhubaneswar
6. Indian Institute of Public Health (IIPH), Shillong
7. Indian Institute of Public Health (IIPH), Gandhinagar
8. Kalam Institute of Health Technology (KIHT), Hyderabad
9. National Institute of Epidemiology (NIE), Chennai
10. Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry.
11. All India Institute of Medical Sciences (AIIMS), Rishikesh
12. State Cancer Institute and King George Medical University (SCI & KGMU), Lucknow
13. National Centre for Disease Informatics and Research (NCDIR), Bengaluru
14. Indian Institute of Public Health (IIPH), Hyderabad
15. National Institute of Virology (NIV), Pune
16. All India Institute of Medical Sciences (AIIMS), Jodhpur
17. Indian Institute of Science (IISc.) Bengaluru

Technical Partners

10.11 Technical Partners are also institutes of the Central/ State Government identified with regards to their capacities, expertise and previous experience in the area of HTA/ Multi-centric research. Technical Partners also conduct HTA studies allocated to them, by HTAIn Secretariat, with their existing capacity/ manpower. DHR provides funds to TPs on study to study basis, instead of fixed annual budget. The outcome reports of the studies conducted by technical partners are submitted to the HTAIn Secretariat for approval from the TAC and Board. The following institutes have been identified as Technical Partners of HTAIn, so far:

1. All India Institute of Medical Sciences (AIIMS), Delhi
2. National Institute of Medical Statistics (NIMS), Delhi
3. National Health Systems Resource Centre (NHSRC), Delhi
4. Public Health Foundation of India (PHFI), Delhi
5. Institute of Economic Growth (IEG), Delhi
6. Indian Institute of Health Management Research (IIHMR), Jaipur
7. Indian Institute of Public Health (IIPH), Bhubaneswar
8. Indian Institute of Technology (IIT), Chennai
9. Indian Institute of Technology (IIT), Mumbai
10. National AIDS Research Institute (NARI), Pune

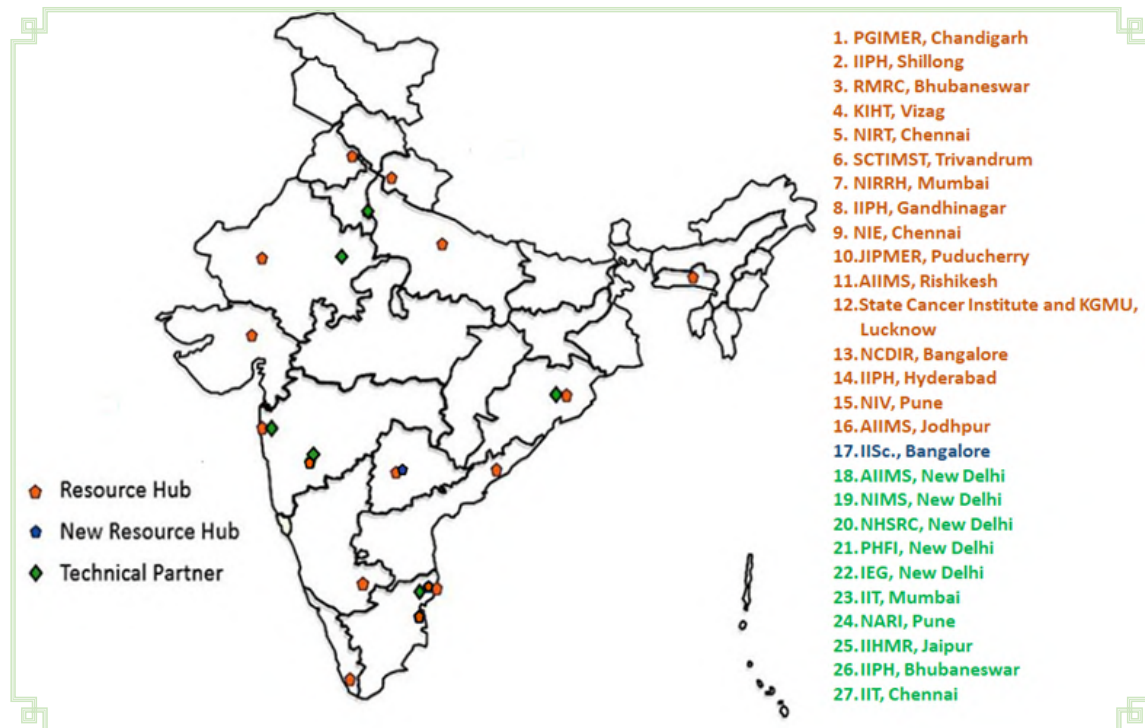


Figure 2: HTAIn Resource Centres and Technical Partners

Stakeholders

10.12 Stakeholders of HTAIn include the user department e.g. Central/ State Govt., NHM, RSBY or NPPA, public health authorities, policy makers, medical insurers, regulatory agencies, industrial associations (e.g. manufacturers, suppliers, wholesalers, distributors and retailers), academicians or methodological experts, researchers, social groups, NGOs, patient group and so on. Stakeholders are individuals, organizations or communities that have a direct interest in the process and/or outcomes of the study under consideration by the HTAIn, therefore their participation is required to maintain the integrity of HTAIn and for a wider acceptance of its recommendations. Thus, a stakeholder's consultation meeting is called after completion of every study to take their feedback and inputs. Outcome reports are also uploaded on the website for the feedback and suggestions. Conflicts of interests, if any, are addressed making the process transparent.

10.13 Process of HTAIn

1. The User Department send their topic(s) to the Secretariat according to their priority area to conduct an assessment.
2. The topic is prioritized by the HTAIn Secretariat. After prioritization, Secretariat present the topic(s) to the TAC and a suitable Technical Partner/ Resource Centres is identified to allocate those topic(s) to conduct the study.
3. The respective TP/ Resource Centres then submit a study proposal that contains the policy question(s), research question(s), objective(s), methodology, timeline, manpower required and the estimated budget.

4. The proposal is submitted to the TAC for approval. TP/Resource hubs present the proposal before the TAC.
5. After the appraisal and approval of the proposal by the TAC, TP/ Resource Centres conduct the HTA study and after completion of the study submit the Outcome Report to the Secretariat for TAC approval.
6. Once the outcome report is approved by the TAC, it is submitted to the Board for final approval. The report is also uploaded in the website to get comments from Stakeholders or a meeting conducted with stakeholders to get their comments.
7. The recommendations presented to the HTAI Board for final approval and subsequently sent to the User Department for implementation.



Figure 3:Key Phases of HTAI Process

10.14 Progress of HTAI:

Progress of HTAI is as follows:

A. HTA studies completed, approved by the Board and documented as policy guidelines:

S. No	HTA studies completed, approved by the Board and documented as policy guidelines
1.	Health Technology Assessment of intraocular lenses for treatment of age-related cataracts in India.

S. No	HTA studies completed, approved by the Board and documented as policy guidelines
2.	Rapid Health Technology Assessment for incorporating TrueNat as a diagnostic tool for tuberculosis under RNTCP in India.
3.	Economic Evaluation of Percutaneous Coronary Intervention in comparison to Coronary Artery Bypass Graft surgery in Left main with or without Triple Vessel Disease.
4.	Economic Evaluation of Percutaneous Coronary Intervention in comparison to Optimal Medical Therapy for the management of patients with Single-Vessel Disease without left main coronary artery involvement.
5.	Economic Evaluation of Coronary Artery Bypass Graft surgery and Percutaneous Coronary Intervention in comparison to Optimal Medical Therapy for the management of patients with Multi-Vessel Disease.
6.	Cost-Effectiveness of Therapeutic Use of Safety-Engineered Syringes in Healthcare Facilities in India.
7.	Health Technology Assessment of Strategies for Cervical Cancer Screening in India
8.	Health Technology Assessment on population based screening for Type 2 Diabetes and Hypertension in India.
9.	Health Technology Assessment of Portable automated ABR Neonatal Hearing Screening Device.
10.	Evaluation of Pulse Oximeter as the Tool to Prevent Childhood Pneumonia related Mortality and Morbidity
11.	Health Technology Assessment of Uterine Balloon Tamponade for Management of Postpartum Haemorrhage in India.
12.	Health Technology Assessment of Long Acting Reversible Contraceptives in India.
13.	Health Technology Assessment for screening of Hepatitis B and C at Primary Health centers in Tamil Nadu.
14.	Cost effectiveness analysis Hypothermia detection devices (BEPMU, Thermospot and fever Watch) for pre-mature and low birth weight neonates in India.
15.	A comprehensive HTA of Project Lifeline - A portable ECG facility at PHCs of Ahmedabad district of Gujarat.
16.	Health Technology Assessment of Automated Resuscitation Device for Neonatal Resuscitation at point of delivery in Indian healthcare system.
17.	HTA of Low-cost portable ventilator
18.	Health Technology Assessment of various RT-PCR kits for the diagnosis of Influenza A/H1N1 virus in all age patients in India.
19.	Validation of Diagnostic efficacy of digital hemoglobinometer (TrueHb), HemoCue and non-invasive devices for screening patients for anemia in the field settings.

S. No	HTA studies completed, approved by the Board and documented as policy guidelines
20.	EuroQol-EQVT study to develop Indian Value sets for EQ5D Quality of Life scores. (Multi-centric Study).
21.	Health technology assessment of TeCHO plus Program in Gujarat State
22.	Implementation of blood counters for diagnosis of dengue at primary health care settings in Tamil Nadu state by NIRT, Chennai. Implementation of Thrombocytopenia screening at PHC level
23.	Cost Analysis of the Meghalaya Health Benefit Packages
24.	Feasibility and effectiveness of Community-based screening for Chronic Kidney Diseases.
25.	Health technology assessment report on clinical effectiveness and cost-effectiveness of cholecystectomy compared with conservative management in people presenting with uncomplicated symptomatic gallstones (biliary pain) or Cholecystitis in India.
26.	HTA on Available technologies for detection of diabetic retinopathy from colour fundus photographs to prevent blindness in India.
27.	Cost-effectiveness of Parenteral Iron Therapy for First-line Management of Iron Deficiency Anemia among Pregnant Women in a Natural Programme Setting in Gujarat.
28.	Estimation of recurrent cost for institutional delivery in different levels of Facilities under JSSK Scheme.
29.	Health Technology Assessment of Intravenous Tranexamic Acid Use in Management of Primary Post-partum Haemorrhage in India.

B. HTA studies ongoing

S.No	HTA Studies
1.	HTA on clinical efficacy, cost effectiveness and feasibility for mass screening of malaria where DAMAN is implemented.
2.	HTA proposal to assess the clinical effectiveness and cost effective of delivering gentamicin injection to manage neonatal sepsis by ANM before referring to the hospital facility
3.	HTA on Rubella vaccine for routine immunization in adolescent girls.
4.	The cost effectiveness of Syphilis & HIV combined point of care (POC) testing among pregnant woman in Maharashtra.
5.	HTA proposal of a Tuberculosis Monitoring Encouragement Adherence Drive (TMEAD) in Nasik & Wardha District of Maharashtra.
6.	Health Technology Assessment of Breast Cancer Screening Techniques in India.
7.	HTA proposal on Positron Emission Tomography in India
8.	HTA on Translating Health Technology Assessments into policy. Mixed methods case studies in India
9.	Evaluation of cardiac packages under Ayushman Bharat

S.No	HTA Studies
10.	Costing and assessment of Manipur PM JAY health Benefit packages
11.	HTA on the use of pulse oximetry screening for detecting critical congenital heart lesions in new-borns.
12.	HTA proposal to assess the effectiveness, need and operational feasibility and cost effectiveness in implementation of telemedicine enabled otoscope in prevention of hearing loss
13.	Cost effectiveness of linking HIV to family Planning services to prevent unintended pregnancies in people living with HIV women
14.	HTA proposal on Cost effectiveness analysis for implementation of smoking cessation strategies at primary health care settings and correlation TB in Tamil Nadu
15.	A Study to assess the use and benefits of telemedicine in the management of chronic diseases in India.
16.	Cost effectiveness analysis of Thiamine supplementation among post-partum women.
17.	HTA proposal on Cost Utility Analysis of Total Knee Replacement Vs Non-Surgical Management for Osteoarthritis Among the Older Adult Population: A Health Technology Assessment
18.	IEC interventions by Government of Tamil Nadu
19.	Economic evaluation of the RBSK diagnostic and treatment strategies for reducing infant mortality
20.	Screening strategies for oral cancer
21.	HTA of Rapid UTI diagnostic kits with Antimicrobial sensitivity
22.	Proposal for estimation of the cost and effect of Nasal High Flow (NHF) compared with non-invasive ventilation (NIV) in COVID patients (Rajasthan).
23.	Screening the population before vaccination for COVID-19, is it a cost - effective strategy for India.
24.	Cost data determination for vaccination of COVID-19 in India.

C. Multi-centric Studies

There are following ongoing multi- centric studies:

S.No	Multi-centric Studies
1.	National Costing Study of Health care in 16 States to support Ayushmann Bharat-PMJAY Health Benefit Package Revision.
2.	Cost effectiveness of the PM-Jan Aushadhi Program
3.	Cost effectiveness threshold for India

S.No	Multi-centric Studies
4.	Price Regulation & Value-Based Pricing for Anti-Cancer Drugs: Implications for Patients, Industry, Insurer and Regulator:
	a) Assessment of economic burden and Quality of Life among cancer patients in India: National Cancer Database for Costs and Quality of Life (CaDCQoL)
	b) Cost-effectiveness of Ribociclib and Palbociclib in the second-line treatment of Hormone receptor-positive, HER2 negative metastatic breast cancer among post-menopausal women
	c) Cost-Effectiveness Analysis of Bevacizumab Plus Chemotherapy Versus Chemotherapy Alone for the Treatment of Advanced and Metastatic Cervical Cancer in India
	d) Price and trade margin regulation of Anti-Cancer medicines
5.	Establishing DHR-ICMR Advanced Molecular Oncology Diagnostic Services (DIAMOnDS)

Establishing DHR-ICMR Advanced Molecular Oncology Diagnostic Services (DIAMOnDS):

10.15 DHR-ICMR Advanced Molecular Oncology Diagnostic Services (DIAMOnDS) is a sub-scheme established under the umbrella scheme of Human Resource and Capacity Development approved for the 15th Finance Commission period 2020-21 to 2025-26. This initiative aims to set up zonal oncopathology labs to provide basic as well as high-end advance diagnostic services to cancer patients and research facilities for basic, translational and clinical research. These laboratories are established in reputed institutes across the country that will ensure the optimum utilization of facilities available there, in terms of equipment and manpower.

The following institute are in place under DIAMOnDS project:

S No.	Zone	Established Centre (DIAMONDS Regional Hub)	To be Established Centre (DIAMONDS Centre)
1	North	AIIMS (New Delhi)	State Cancer Institute- Lucknow
2	South	CMC (Vellore)	JIPMER- Puducherry
3	North East	TMC (Kolkata)	Cachar Cancer Hospital and Research Centre (CCHRC)- Silchar RIMS, Imphal
4	West	Tata Memorial Hospital (TMH) (Mumbai)	AIIMS-Jodhpur, Rajasthan

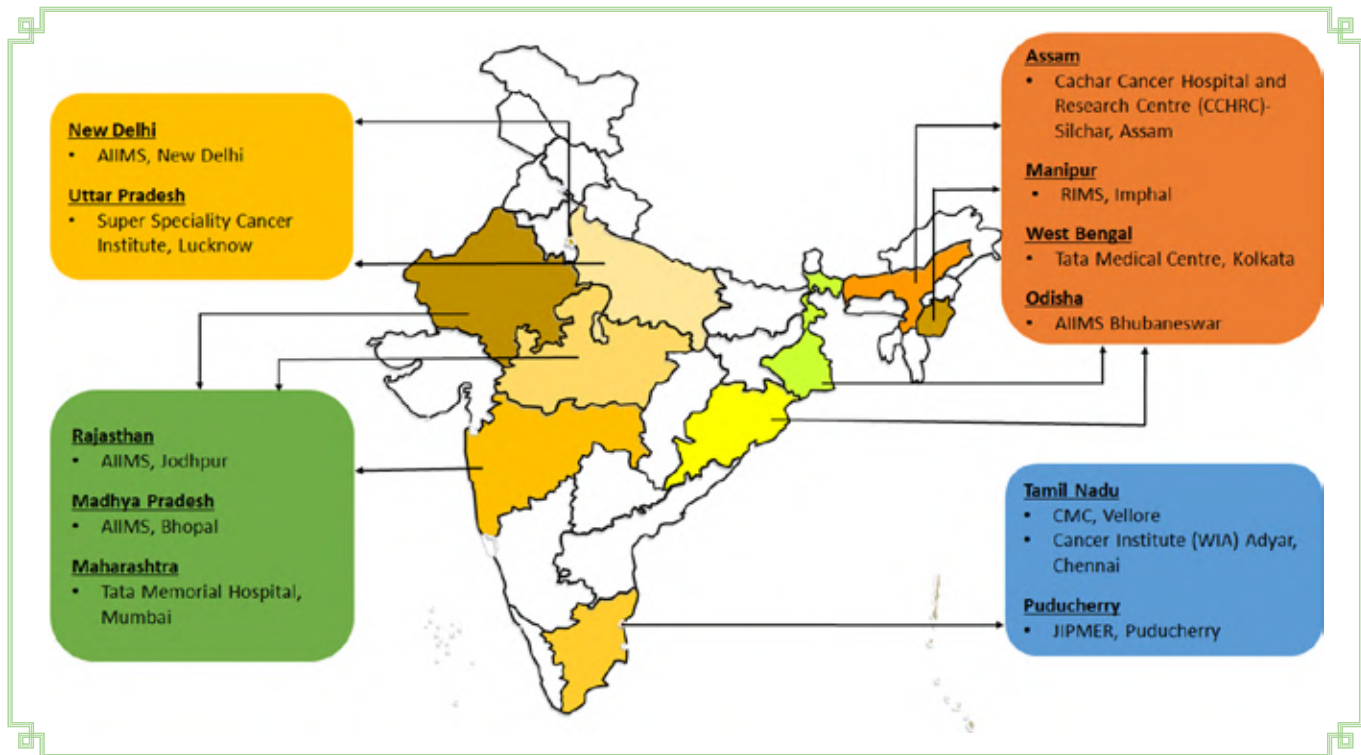


Figure 4: Selected Institutes for DIAMOnDS Project

As per the approved SFC for 15th Financial Commission, 3 new DIAMOnDS Centers can be established each year during 2020-21 to 2025-26. Therefore, following 3 centres during the year 2020-21 has also been established:

- AllMS Bhubaneswar,
- AllMS Bhopal,
- Adyar Cancer Institute, Chennai

Health Technology Assessment Board Bill, 2021 (HTAB Bill)

10.16 A Health Technology Assessment Board Bill, has been proposed to institutionalize the structure and function of the HTAI body. The Bill is to provide for the constitution of a Board for providing evidences related to cost-effectiveness, clinical- effectiveness and safety of medicines, devices, vaccines and health programmes undertaking Health Technology Assessment (HTA) studies for decision making. It will evaluate affordability, appropriateness and cost effectiveness of the available and new health technologies in India. It will work on the objectives of maximizing health, reducing out of pocket expenditure and reducing inequality so that maximum people can have access to quality healthcare at minimum cost in the country. As part of Inter-Ministerial/State/ Union Territories consultation the draft Health Technology Assessment Board Bill, was sent for Inter-Ministerial/State/Union Territories. 28 Ministries and 24 States have given their comments.

Meetings Conducted

10.17 26 Technical Appraisal Committee meeting, 5 Medical Technology Assessment Board Meeting and 3 Expert Committee Meeting have been conducted.

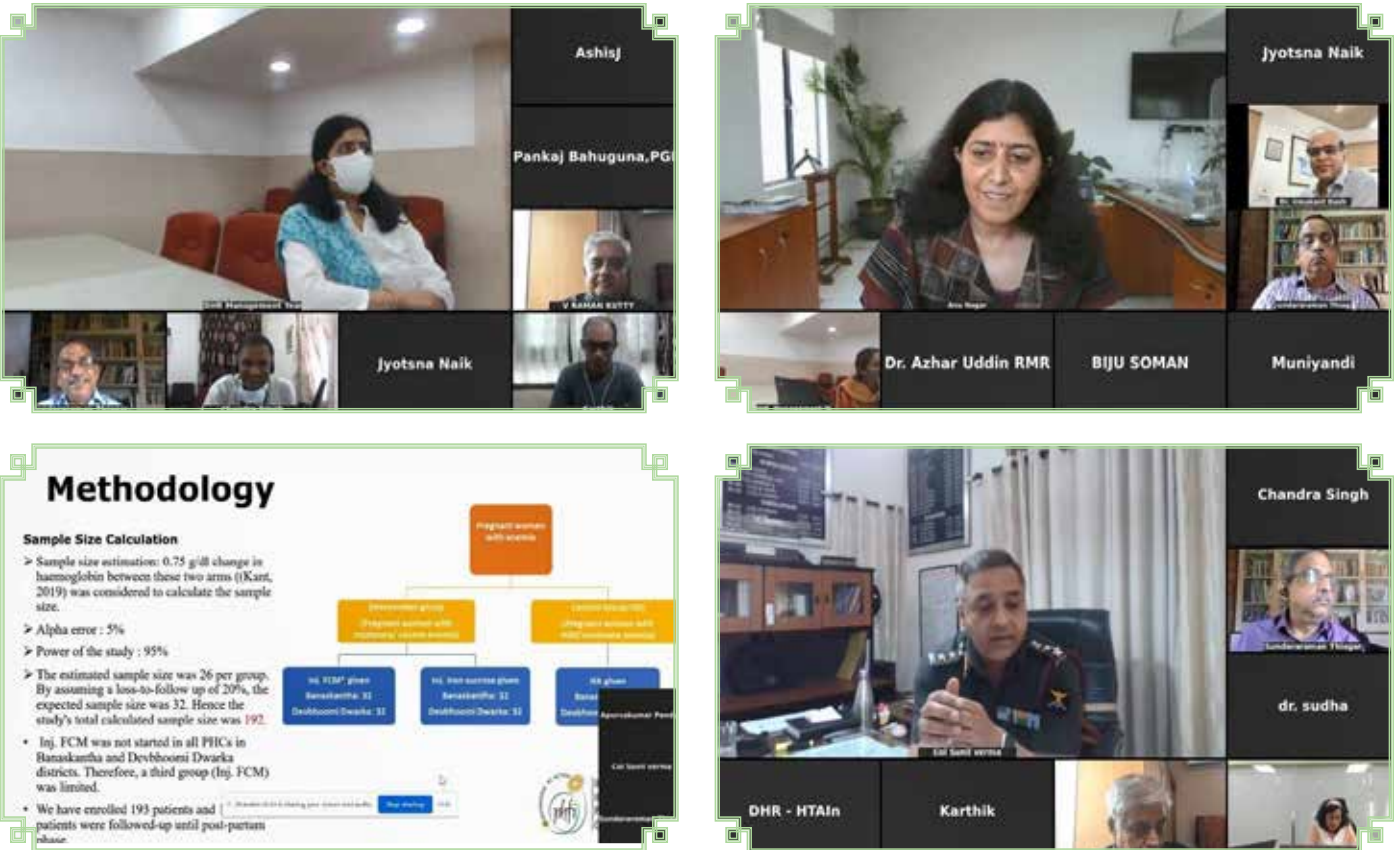


Figure 5: Technical Appraisal Committee Meetings



Figure 6: Medical Technology Assessment Board Meetings



Figure 7: Expert Committee Meetings

10.18 Capacity Building

Training and Workshops conducted so far

	Workshop/Training	Organized by	Date
1.	Mahidol University- 2 ICMR staff	Department of Health Research	11 August 2017
2.	Introduction To Economic Analysis For Health Technology Assessment	Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum	8-13 May, 2017
3.	Workshop On Systematic Review And Meta-Analysis	Department of Health Research, in collaboration with NIMS, ICMR	29-30 May, 2017
4.	Proposal Development Workshop for HTAIn technical partners	HTAIn Secretariat, Department of Health Research	22 Dec, 2017
5.	2nd National Conference on Health Technology Assessment	School of Public Health, PGIMER, Chandigarh	24-25 Feb 2018
6.	Introduction to Economic Evaluation in Health Technology Assessment (HTA)	Department of Health Research/ Imperial College	28 Oct-3 Nov 2018
7.	2nd National Workshop on 'Costing of Health Services'	Department of Health Research/ PGIMER	19 Nov-20 Nov 18
8.	Introduction to Economic Evaluation in Health Technology Assessment (HTA) Advanced Training	Department of Health Research/ Imperial College	20-24 May 2019
9.	Orientation workshop with National Health Mission, Tamil-Nadu	Department of Health Research NIRT, Chennai	29 June 2019
10.	Introduction to Economic Evaluation in Health Technology Assessment (HTA)	Department of Health Research	16-20 Sep 2019

	Workshop/Training	Organized by	Date
11.	3rd National Workshop on 'Costing of Health Services' for new centres	HTAIn Resource hub, PGIMER Chandigarh	10-13 Dec 2019
12.	7th International Workshop on Health Technology Assessment.	School of Public Health, PGIMER, Chandigarh	19- 23 Feb 2018
13.	Online Advance HTA Training Webinar	Department of Health Research/ iDSI	22nd July 2020
14.	Online Webinar for State Government Health Officials (Principal/Chief Secretary, Secretary, Mission Directors)	Department of Health Research/ iDSI	5th November 2020
15.	Online Webinar for State Government Health Officials (Principal/Chief Secretary, Secretary, Mission Directors)	Department of Health Research/ iDSI	7th January, 2021
16.	Online DHR Advanced HTA Training for Resource Centres (Basic Statistics for Health Economics)	Department of Health Research/ iDSI	20th and 23rd November
17.	Online DHR Advanced HTA Training for Resource Centres (Systematic Review Methods)	Department of Health Research/ iDSI	20th -22nd January, 2021
18.	Online DHR Advanced HTA Training for Resource Centres. (Costing Health Services)	Department of Health Research/ iDSI	24th -25th March, 2021
19.	Online DHR Advanced HTA Training for Resource Centres. (Outcome Measurement)	Department of Health Research/ iDSI	5th October, 2021

International Symposium on Health Technology Assessment (ISHTA- 2021)

10.19 Health Technology Assessment in India, Department of Health Research, Ministry of Health and Family Welfare in collaboration with International Decision Support Initiative (iDSI) organized an International Symposium on Health Technology Assessment (ISHTA- 2021) "Translating Knowledge and Best Practices into Policy for Evidence Informed Decision making in Healthcare Sector for Universal Health Coverage" on 10th December 2021, New Delhi.

10.20 The aim of the International Symposium was to discuss global best practices in HTA, for development of a sustainable model of evidence based decision making through HTA institutionalization in the country for Universal Health Coverage. It also provided a forum for the exchange of relevant country experiences and policy lessons on the use and adoption of HTA including the role and relevance of technology assessment methods to support and inform decision-making. There was multi-sectorial coordination and active engagement of the stakeholders to identify areas of work, scoping decision problems, commissioning economic evaluation, technical appraisal, quality assurance and dissemination of results and recommendations for implementation in healthcare sector. The symposium was attended by about 500 participants, virtually or in person. On this occasion Hon'ble Minister of State of Health & Family Welfare, Government of India,

Dr Bharati Pravin Pawar released a video on “The Power of HTA” and two books - “Policy Briefs” and “Development of Health-Related Quality of Life Value Sets (EQ-5D-5L) for India”.

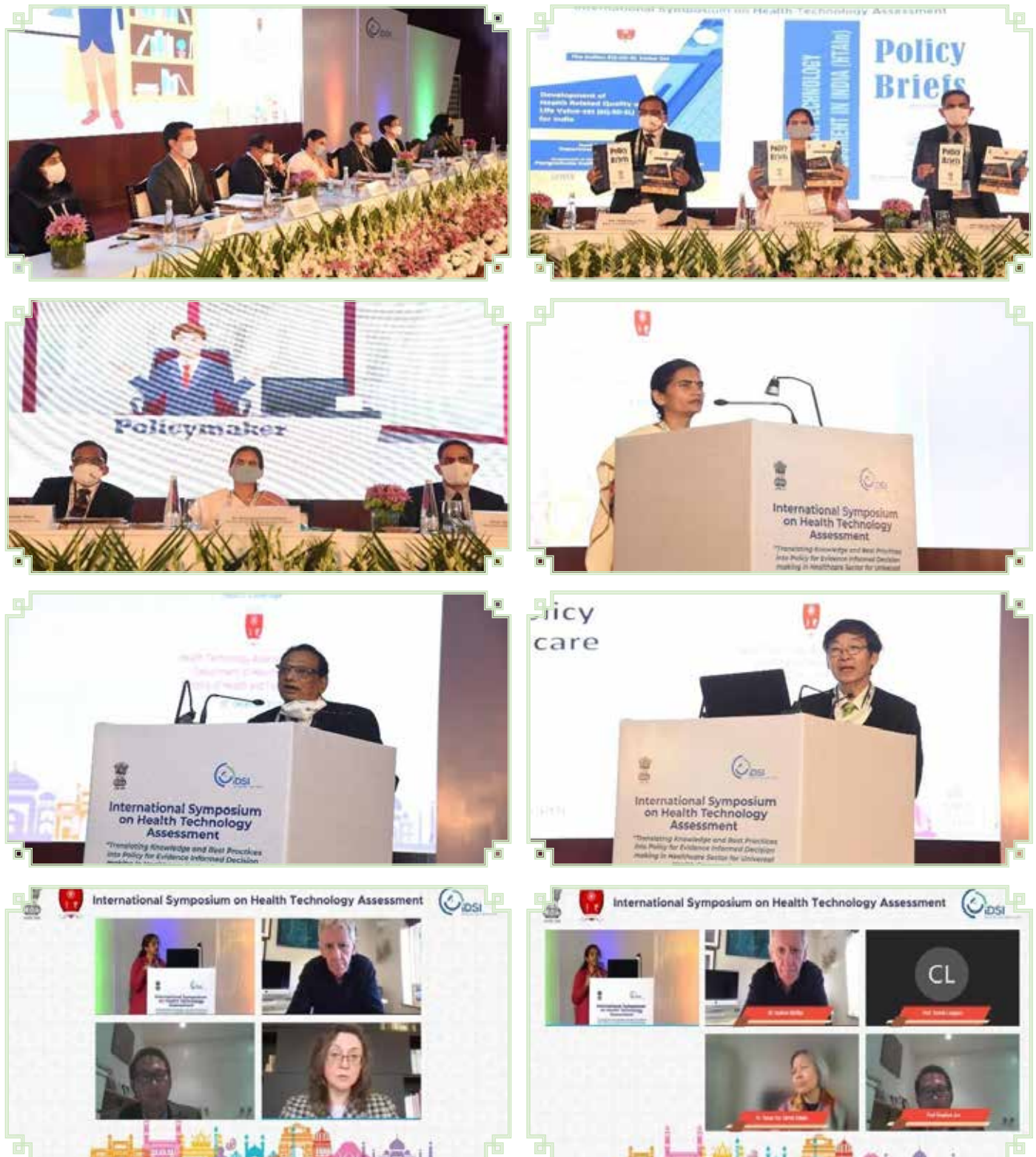


Figure 8: International Symposium on HTA

10.21 Budgetary Allocations for implementation of HTA are as follows:

(Rs. in Crores)

Year	BE	RE	Actual Expenditure
2017-2018	5.00	6.00	5.81
2018-2019	6.00	7.01	5.83
2019-2020	25.00	23.00	22.75
2020-2021	25.00	15.00	13.66
2021-2022	23.00	22.00	12.22
			(31/12/2021)

CHAPTER 11 Implementation of Schemes In North Eastern Region

I. Establishment of VRDLs in Government Medical College:

(Rs. in lakh)

Sl. No.	Name of State	Name of VRDL	Funds Released	
			2013-14 to 2020-21	2021-22 (As on 31 st Dec 2021)
1.	Assam	RMRC Dibrugarh	948.9	57.50
		Guwahati Medical College, Guwahati	598.82	36.50
		Tezpur Medical College, Tezpur	265.85	31.40
		Jorhat Medical college, Jorhat	261.75	31.40
		Fakhruddin Ali Ahmed Medical College, Barpeta, Assam	233.53	46.40
		Silchar Medical College, Silchar	239.64	31.40
2.	Manipur	Regional Institute of Medical Sciences (RIMS), Imphal	522.82	15.75
		Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Imphal	302.13	26.90
3.	Meghalaya	NIIndira Gandhi Regional Institute of Health and Medical Sciences (NEIGRIHMS), Shillong	418.52	-
4.	Mizoram	Zoram Medical College, Mizoram	182.90	9.75
5.	Tripura	Government Medical College, Agartala	305.78	31.40
		Total		318.4

II. Establishment of MRUs in Government Medical Colleges in North Eastern States:

(Rs. in Lakh)

S. No	Name of state	Name of the Medical College with sanctioned MRU	Funds released		
			2013-14 to 2020-21	2021-22 (up to 31st December, 2021)	2021-22 (estimated expenditure upto Mar 2022)
1	Assam	Silchar Medical College and Hospital, Silchar	459.90	27.50	-
		Fakhruddin Ali Ahmed Medical College, Barpeta	459.97	42.94	-
		Jorhat Medical College, Jorhat	308.73	29.65	-
		Assam Medical College & Hospital, Dibrugarh	-	47.80	-
2	Manipur	Regional Institute of Medical Sciences, Imphal	519.52	0.07	20.14
3	Tripura	Agartala Government Medical College, Agartala	652.29	30.20	-
Total			2400.41	185.09	20.14

III. Establishment of MRHRUs in North Eastern States:

(Rs. in Lakh)

S. No	State	Location of MRHRU	ICMR mentor institute/centre	Funds released		
				2013-14 to 2020-21	2021-22 (up to 31st December, 2021)	2021-22 (estimated expenditure upto Mar 2022)
1	Assam	PHC Chabua	RMRCNE, Dibrugarh	492.49	60.49	-
2	Tripura	Kherengbar Hospital Khumulwung	RMRCNE, Dibrugarh	490.78	49.34	-
3	Nagaland	PHC, Niuland, Dist: Dimapur	RMRCNE, Dibrugarh	150.00	-	50.00
4	Meghalaya	CHC Sohra East Khasi Hills	RMRCNE, Dibrugarh	149.99	-	50.00
5	Arunachal Pradesh	CHC Sagalee Papum Pare	RMRCNE, Dibrugarh	150.00	-	50.00
6.	Mizoram	PHC, Aizwal, Mizoram	RMRCNE, Dibrugarh,	150.00	-	50.00
Total				1583.26	109.83	200.00

IV. Implementation of HRD Scheme in North Eastern States:

(Rs. in Lakh)

S. No.	State	Name of the Institute	Funds released		
			2013-14 to 2020-21	2021-22 (upto 31st Dec 2021)	2021-22 (estimated expenditure upto Mar 2022)
1	Manipur	Jawaharlal Nehru Institute of Medical Sciences, Porompat, Imphat East, Manipur, Pin: 795005	34.42	-	-
2	Assam	Department of Biotechnology, Tocklai Tea Research Institute, Tea Research Association, Jorhat	14.66	-	-
3	Nagaland	Yingli College Longleng, - 798625	3.10	-	-
4	Tripura	C/O: Mr. Mrinal Kanti Paul 43, B. K., Near Womens College Agartala, West Tripura	1.80	-	-
5	Nagaland	Senior Nagaland State Department of Health and Family Welfare	1.80	-	-
6	Nagaland	Health & Family Welfare, Govt. of Nagaland	1.80	-	-
7	Assam	Regional Medical Research Centre-NE Region, Indian Council of Medical Research	15.70	-	-
8	Assam	Regional Medical Research Centre, Northeast Region, ICMR, Dist-Dibrugarh, Assam	15.04	-	-
9	Assam	RMRC, Dibrugarh, ICMR, N.E. Region, Dibrugarh	2.00	-	-
10	Assam	Principal, Governing Body, Moinul Hoque Choudhury Memorial Science College, Algapur	3.10	-	-
11	Manipur	Community Medicine, Imphal West, Manipur	5.96	-	-

S. No.	State	Name of the Institute	Funds released		
			2013-14 to 2020-21	2021-22 (upto 31st Dec 2021)	2021-22 (estimated expenditure upto Mar 2022)
12	Nagaland	Department of Health & Family Welfare, Govt. of Nagaland-797001	1.80	-	-
13	Assam	Regional Medical Research Center, N.E. Region (ICMR), Dibrugarh, Assam	62.07	-	-
14	Assam	Department of Pharmaceutical Sciences Dibrugarh University, Dibrugarh-786004, Assam	28.87	6.94	7.19
15	Assam	C/O Dr. Siraj Ahmed Khan (Scientist E), ICMR-RMRC, Dibrugarh, Post Box No-105 Pin-786001	41.83	-	-
16	Tripura	Department of Microbiology Agartala Government Medical College and GBP Hospital Post Office: Kunjavan	61.21	-	-
17	Gauhati	Dept. of Bioengineering and Technology GUIST, Gauhati University	68.81	-	-
18	Assam	Dept. of Biotechnology, Tocklai Tea Research Institute Tea Research Association Jorhat	28.07	-	-
19	Assam	Deptt. of Community Medicine, Jorhat Medical College, Jorhat - 785001	30.18	11.24	-
20	Manipur	Community Medicine Department, Jawaharlal Nehru Institute of Medical Sciences, Porompat, Imphal, MANIPUR - 795005	3.00	-	-

S. No.	State	Name of the Institute	Funds released		
			2013-14 to 2020-21	2021-22 (upto 31st Dec 2021)	2021-22 (estimated expenditure upto Mar 2022)
21	Manipur	Department of Forensic Medicine, Regional Institute of Medical Sciences, Imphal - 795004	2.00	-	-
22	Manipur	Community Medicine Department Regional Institute of Medical Sciences, Imphal - 795004	3.00	-	-
23	Assam	Dept. of Bioengineering and Technology GUIST, Gauhati University	15.02	-	-
24	Assam	Department of Biotechnology Tocklai Tea Research Institute Tea Research Association Jorhat	8.72	-	-
25	Assam	Tezpur University, Tezpur, Napaam, Sonitpur, Assam - 784028	11.81	-	-
26	Assam	Gauhati Medical College and Hospital, Bhangagarh, Guwahati, Assam	11.06	-	14.04
27	Meghalaya	Department of Pharmaceutical Sciences, Mairang Mission, West Khasi Hills, District, Mairang, Meghalaya - 793120	-	-	-
28	Assam	Gauhati University, Gopinath Bordoloi Nagar, Jalukbari, Guwahati, Kamrup, Assam - 781014	-	8.12	-
		Total	476.83	26.30	21.23

V. Grant-in-aid Scheme for Inter-sectoral Convergence and Coordination for Promotion and Guidance on Health Research in North Eastern States:

(Rs. in Lakh)

S. No.	State	Name of the Institute	Funds released		
			2013-14 to 2020-21	2021-22 (upto 31st Dec 2021)	2021-22 (estimated expenditure upto Mar 2022)
1	Meghalaya	Martin Luther Christian University, Shillong	52.73	-	*
2	Assam	Sri Sankara Nethralaya Postgraduate Institute of Sri Kanchi Sankara Health and Educational Foundation, Guwahati, Assam	57.15		
		Dr. Bhubaneswar Borooah Cancer Institute, Guwahati	-	*	
		ICMR-Regional Medical Research Institute, Dibrugarh		-	*
	Total		109.88	-	*

*subject to shortlisting of new proposals received during 2021-22.

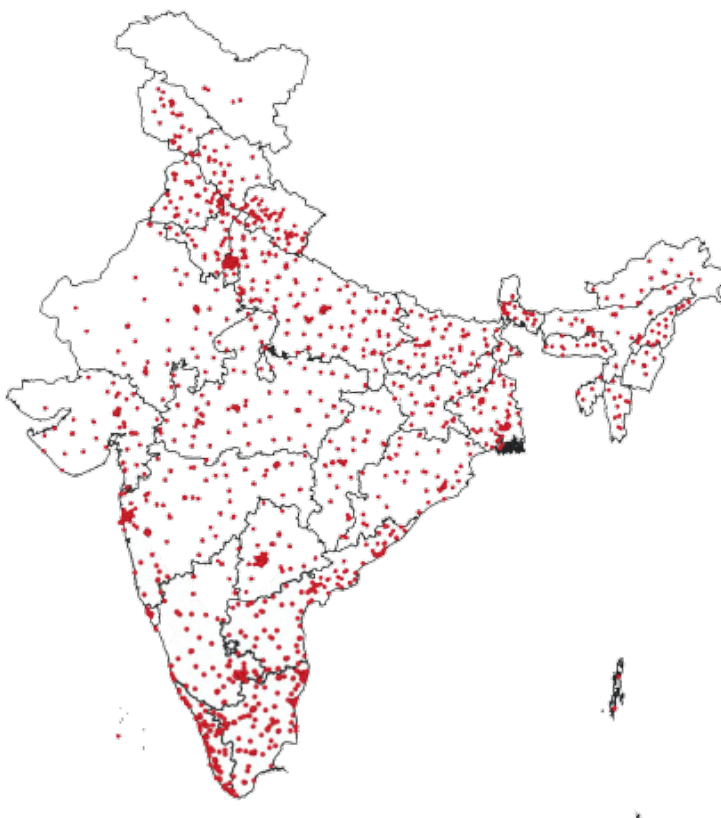
CHAPTER 12 Outbreak of COVID-19

Department of Health Research through Indian Council of medical Research (ICMR), an autonomous organization under its administrative control, has been on the forefront to address public health challenges and finding suitable solutions through research for the nation.

12.2 From the beginning of the pandemic, Department of Health Research (DHR) was mandated with the responsibility of enhancing and facilitating COVID-19 testing, by ensuring suitable infrastructure and sufficient inventory for testing commodities across all States/UTs. The country witnessed an unprecedented surge of COVID-19 cases during April - May 2021. To manage and contain the surge, it was essential to increase the COVID-19 testing capacity of the country and this department proactively took a multitude of measures to further increasing the COVID-19 testing capacity of the country in an equitable fashion along with ensuring availability of testing commodities.

12.3 Department had onboarded almost 2300 labs by end of December 2020, amidst the spike of cases in early 2021, the department immediately took measures to ensure three shifts in all the testing labs to immediately meet the increased demand. It was also proposed to repurpose and move the RT-PCR machines available in the neighborhood to the nearby testing centers to increase the capacity of existing individual labs. DHR coordinated with State govts/Govt institutions through continuous stakeholder consultation to facilitate immediate increase in testing capacity to meet the country's testing demands along with strengthening procurement and supply chain management of COVID-19 diagnostics in the States/UTs. The department coordinated with States/UTs to ensure maximum capacity utilization of the existing testing labs and also on onboarding new testing labs to ICMR testing network. ICMR onboarded an additional 800 labs to its testing network in the year 2021. DHR supported in establishing 26 high through-put laboratories across the country with capacity to perform more than 3000 tests per day for increasing the testing capacity for infectious diseases. DHR identified locations and coordinated with State Government and institutions to ensure equitable distribution of 100 RNA extraction machines and 300 RT-PCR machines donated by UNICEF across the country. These machines supported in increasing the testing capacity of existing labs. DHR also coordinated setting up of 16 biosafety laboratories in various states through the prestigious PM cares fund.

12.4 Additionally, in areas where testing facility were minimal or over utilized, the Department and ICMR coordinated with private players to bring in mobile testing laboratories for COVID-19 testing and the first of such laboratories were launched by ICMR/DHR along with Spice Health in Delhi. Today there are more than 25 mobile testing laboratories to serve the underserved areas. Newer testing technologies were promoted by ICMR /DHR and timely guidelines were issued to promote their successful implementation and put them to use.



Mapping view of the National Testing Laboratory Network

12.5 Similarly, another focus point was to coordinate with the suppliers of COVID-19 diagnostics. DHR coordinated with all the manufacturers and organized stakeholders consultations to identify their issues and support them with the requisite regulatory, logistical and facilitation support needed to enhance manufacturing capacity provided instrumental in ensuring unhindered supplies to the States/UTs. DHR supported the manufacturers with expediting their regulatory approvals, supported them for uninterrupted logistics, local movement permissions, resolution of operational constraints faced by them, during lock downs by coordinating with respective district administrations to ensure uninterrupted production and availability of COVID-19 testing commodities.

12.6 Special emphasis was made in facilitating the COVID -19 rapid antigen test kit manufacturing industry. Validation of RAT kits were expedited and COVID-19 validation portal was developed to ensure validation in an easy, expedited and a transparent fashion. Additionally, the validation centers handhold the domestic players in ensuring development of quality products and thus to accomplish self-reliance in production of COVID-19 testing commodities in line with the mission of Atma-nirbhar Bharat.

12.7 Support was also provided by expediting customs clearance of imported raw materials of COVID-19 diagnostic kits and also by reducing the customs duty on COVID-19 diagnostic commodities for a specific time interval with support from the relevant Departments in Government of India. Currently, the country has a capacity to produce more than 80 lakhs for RAT kits and RT-PCR kits

per day and this makes India, a country with surplus capacity of COVID-19 diagnostics with huge provisions for export. Currently export of COVID-19 are free which opens the global market for our manufactures to support other foreign countries in need of COVID-19 diagnostics. Thus, all these initiatives made India free of import dependency and also a country with surplus production capacity thereby proudly demonstrating the strength of Atma-nirbhar Bharat. Atma-nirbhar Bharat initiative also created a healthy competition in the diagnostic market resulting in huge drop in the cost of covid-19 diagnostic commodities.

12.8 Apart from supporting the manufactures for enhanced production of quality kits, the visibility and access of these products to the States/UTs were ensured by onboarding of all these manufactures in Government e- Market place (GeM) portal. Multiple trainings were organized for the manufacturers and States/UTs for ensuring seamless use of GeM portal by all stakeholders including diagnostics manufacturers. Procurement timeline on GeM was reduced from 6-7 days to 24 hours for easing of the procurement process. ICMR also issued advisory allowing rapid antigen test kits approved by reputed regulators from other countries to be used in India without the requirement for additional approval. ICMR/DHR also supported the States /UTs by providing them with emergency support with COVID-19 diagnostics when in need to ensure uninterrupted testing in States /UTs. DHR organized weekly meeting with all States/UTs to monitor their inventory status and share the status with them for further necessary action thereby ensuing continuous availability of testing commodities in all States/UTs.

12.9 Grievance Redressal for manufacturers regarding pending payments were taken up by the Department with respective procuring agencies from the various States/UTs governments to ensure sufficient working capital for the COVID-19 Diagnostics Manufacturers. Grievances worth a total of more than Rs 280 crores was cleared in the year 2021 with the help of the relevant procurement agencies in collaboration with the industry partners.

12.10 ICMR also partnered with Bharat Biotech in development of COVAXIN, which was approved by DCG(I) for emergency use as for COVID-19 vaccination. This vaccine is also now approved for use in children. Development of COVAXIN lead India to be the fifth nation in the world to do so and paved the way for vaccine development in record time another flag bearer of Atma-nirbhar Bharat initiative.



COVAXIN - indigenous COVID-19 vaccine

12.11 To summarize the testing status, in India, 67,89,89,110 tests have been conducted till 31st December 2021. The maximum tests conducted per day was 23.48 Lakhs on 25th May 2021. The national average tests per million per day has increased to 752.

Testing Centres as on 31st December 2021:

12.12 ICMR has 3117 approved centers for COVID 19 testing with 1364 government and 1753 private labs.

Total No. of Labs: 3117		
Govt	Private	Cartridge/
RT-PCR	RT-PCR	CB NAAT/ True Nat
718	1299	1070

12.13 The total Number of kits validated till 31st of December is 1584 with 578 indigenous kits (as on 31st December 2021)

	Evaluated so far	Recommended	Indigenous Products out of those recommended
RT-PCR Kits	508	205	137
RNA Extraction Kits	279	189	126
VTM	269	236	224
Antibody Kits	208	26	20
ELISA/CLIA	180	32	23
Rapid Antigen Kit (NP/OP)	132	53	44
Saliva based Rapid Antigen Kit	8	0	0
TOTAL	1584	745	578

CHAPTER

13

NATIONAL ETHICS COMMITTEE REGISTRY
FOR BIOMEDICAL AND HEALTH RESEARCH
(NECRBHR)

The Ministry of Health and Family Welfare, Government of India, had notified the 'New Drugs and Clinical Trials Rules, 2019', which came into force from the 19th March, 2019. As stipulated in Chapter IV of these Rules, which came into force after 180 days, Ethics Committees (ECs), reviewing biomedical and health research, involving human participants, shall register with the authority designated by the Central Government in the Ministry of Health and Family Welfare, Department of Health Research (DHR). Accordingly, National Ethics Committee Registry for Biomedical and Health Research (NECRBHR) had been set up in DHR in September, 2019. For this purpose, a software, namely, 'Naitik portal' (<https://naitik.gov.in/>), has also been developed and launched for online submission, receipt and processing of applications for EC registration. After this registry started functioning, requests for registration of ECs were received, and are being received, from various organizations through the said portal.

13.2 Continuous efforts have been made to improve the user-friendliness of the portal and reduce the compliance burden. In this regard, eHastakshar OTP-based validation was integrated on the Naitik portal removing the requirement of submission of hardcopies for login registration. Efforts were also made to reduce the compliance burden by allowing auto-filling of information wherever possible and by reducing submission requirements for users' ease.

13.3 Outreach measures for disseminating the requirements and necessity for registration of ECs were extended through issue of notifications to various stakeholders and nodal agencies under the Government for wide publicity of the arrangement put in place for registration of ECs and conferences and training programmes in association with the Indian Council of Medical Research. This was further extended through training programmes and conferences by DHR/ICMR.

13.4 537 login requests and 417 EC registration applications have been received from January 2021 - 31 December 2021. Against it, 315 ECs have been issued Provisional Certificate during the corresponding period. It includes 149 hospitals, 111 medical/ Dental colleges and 15 universities. Information of all these ECs are in public domain on the Naitik portal.

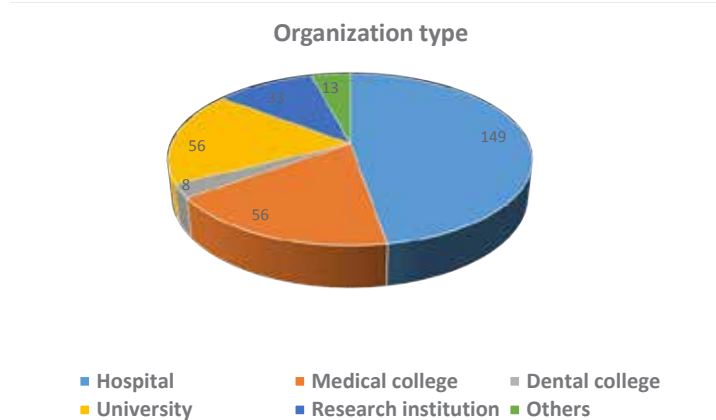


FIGURE: ETHICS COMMITTEES RELATED TO TYPES OF ORGANISATIONS
REGISTERED WITH NATIONAL ETHICS COMMITTEE REGISTRY FOR
BIOMEDICAL AND HEALTH RESEARCH (NECRBHR), DHR

CHAPTER

14

INDIAN COUNCIL OF MEDICAL RESEARCH (ICMR)

Indian Council of Medical Research (ICMR), New Delhi, is the apex body in India for the formulation, coordination and promotion of biomedical research and is one of the oldest medical research bodies in the world. The ICMR is funded by the Government of India through the Department of Health Research, Ministry of Health & Family Welfare.

14.2 The Governing Council of the ICMR is presided over by the Union Health Minister. It is assisted in scientific and technical matters by a Scientific Advisory Board comprising eminent experts in different biomedical disciplines. The Board, in its turn, is assisted by a series of Scientific Advisory Groups, Scientific Advisory Committees, Expert Groups, Task Forces, Steering Committees etc. which evaluate and monitor different research activities of the Council.

14.3 The Council's research priorities coincide with the National health priorities such as control and management of communicable diseases, fertility control, maternal and child health, control of nutritional disorders, developing alternative strategies for health care delivery, containment within safety limits of environmental and occupational health problems; research on major non-communicable diseases like cancer, cardiovascular diseases, blindness, diabetes and other metabolic and haematological disorders; mental health and drug research (including traditional remedies). All these efforts are undertaken with a view to reduce the total burden of disease and to promote health and well-being of the population.

14.4 ICMR has also demonstrated its commitment to the future of medical research through its professional development training and capacity building. This includes training programs, workshops, and short-term research studentships for those preparing for a career in medicine and medical research. It also includes research fellowships and short-term visiting fellowships for up and coming researchers to expand their skills and knowledge early in their career. ICMR also offers Emeritus Scientist positions to enable retired medical scientists and teachers to continue to carry out research on specific topics.

14.5 The impact of ICMR spans across the globe with research collaborations spanning every continent. Through ICMR's Memoranda of Understandings (MoUs), ICMR has partnered with leading universities from around the world to concentrate efforts on leading health issues such as cancer, diabetes, infectious diseases, and vaccine development. These collaborations facilitate the exchange of scientific information, training, joint projects, and co-authorship of meetings, workshops, seminars, and symposia presentations.

Intramural Research

14.6 Intramural research is carried out through a countrywide network 27 institutes/centres with multiple field stations, 14 work in the area of communicable diseases; 6 in Non-Communicable Diseases, 1 in diseases related to Reproductive and Child Health (RCH); 1 in nutrition and nutritional deficiencies, 3 in disease related to Basic Medical Sciences including haemoglobinopathies and traditional medicine, 1 in the area of animal breeding and research and 1 is patient care and research centre.

Extramural Research

14.7 Extramural research is promoted by ICMR through- Setting up Centres for Advanced Research in different research areas around existing expertise and infrastructure in selected departments of Medical Colleges, Universities and other non-ICMR Research Institutes. Task force studies are also carried out which emphasize a time-bound, goal-oriented approach with clearly defined targets, specific time frames, standardized and uniform methodologies, and often a multi-centric structure.

14.8 Open-ended research on the basis of applications for grants-in-aid received from scientists in non-ICMR Research Institutes, Medical colleges, Universities etc. located in different parts of the country.

14.9 Achievements during the year:

- **COVID-19 Pandemic:** ICMR has been at the forefront in the fight against Covid-19. The major achievements in this area are listed below:
 - **COVID-19 Testing:** COVID-19 has emerged as a global pandemic and has caused significant morbidity and mortality all over the world. The testing capacity has been expanded significantly in the country. RT-PCR based testing capacity has been in almost all parts of the country from 1 lab in January 2020 to a total of 3011 labs in October 2021 (1336 Govt. & 1677 Private Labs). All labs have been established after due diligence and ascertaining adequate checks and balances to ensure high quality testing. NABL accreditation with specified scope has been ensured for all private laboratories. The lab network conducted more than 22 lakh cumulative tests on May 26, 2021 as compared to only 20,000 tests on March 23, 2021. A total of 60 Crore tests have been conducted till now.
 - **COVID-19 Vaccine:**

Covaxin: Covaxin is an indigenous inactivated whole-virion SARS-CoV-2 vaccine BBV152. ICMR has partnered with Bharat Biotech International Limited (BBIL) to develop a fully indigenous vaccine for COVID-19 using the virus strain isolated at ICMR's National Institute of Virology (NIV), Pune. The vaccine has been found to 78% effective in the phase 3 clinical trial results. The neutralizing antibodies elicited by immunization with BBV152/ Covaxin were found effective against alpha, kappa, gamma and beta variants. Emergency Use Authorization (EUA) is given and is rolled out for vaccination.

Covishield: Apart from the fully indigenous vaccine development initiative, ICMR collaborated with Serum Institute of India and Oxford University to fast-track phase I/II clinical trials of the live attenuated recombinant vaccine for COVID-19 developed by the Oxford Group. The vaccine has received the Emergency Use Authorization (EUA) and is rolled out for mass vaccination.

More than 133 Cr doses have been administered till now.
 - **COVID-19 Vaccine Effectiveness:** ICMR has undertaken several studies to demonstrate the effectiveness of COVID-19 vaccines against the variants of concern (Alpha, Beta, Gamma, Delta) as well as in real- world settings. ICMR has also demonstrated that COVID-19 vaccine is effective in preventing mortality (Dose 1: 96.6% & Dose 2: 97.5%).

- **Drone-based delivery of COVID-19 Vaccine:** Union Minister for Health & Family Welfare, Shri Mansukh Mandaviya, launched ICMR's Drone Response and Outreach in North East (i-Drone). i-Drone is another pioneering initiative undertaken by ICMR to transform India's health ecosystem. First sortie with vaccines was conducted from Bishnupur District Hospital, to PHC Karang today. Bishnupur is located in the plains and PHC Karang is located on the island of Loktak Lake of the Bishnupur district. It takes approx 2.5 hrs (25 Km by road, 3 Km by boat and further 2 Km by trek) to reach PHC Karang from District Hospital Bishnupur. Whereas the drone took only 15 minutes to reach the PHC Karang from Bishnupur District hospital. This is first such initiative of vaccine delivery through drone from plain to island in south-east Asia.
- **COVID-19 Third & Fourth National Serosurvey:** The 3rd & 4th round of national sero-survey for #COVID19 demonstrated overall sero-prevalence of 24.1% & 67.6% in the entire population respectively. The 4th serosurvey demonstrated that a third of population did not have antibodies (Still ~ 40 crores vulnerable). Thus, states/districts/areas without antibodies run the risk of infection waves. Implications of 4th Round of National Sero-Survey show that there is a ray of hope but there is no room for complacency. Non-essential travel must be discouraged and travel only if fully vaccinated.
- **Other Communicable Diseases:**
 - **End TB by 2025:** In efforts towards TB elimination, the National TB Prevalence survey was conducted in 625 clusters in all states/UTs covering around 5 lakh population to assess the true burden of TB. It has helped in identifying the hotspots in the country where accelerated efforts are required.
 - **Malaria Elimination Research Alliance (MERA) India:** ICMR funded 32 projects under MERA India initiative, including eight individual studies, and 24 multi-centric projects under Task Force mode on four themes viz low-density infection detection (LDI); vector bionomics, Geographical Information System and community behavior. The salient features of the MERA-India multi-centric projects include mentoring by the experts; standard common objectives and methodology to maintain research quality and uniformity of data generation; and extensive peer-review. As a step towards capacity-building and in order to provide training to the young investigators, MERA-India organized workshops at ICMR-NIMR in the multi-centric project themes. On the occasion of World Malaria Day, MERA-India organized a virtual international symposium in April 2021. As part of MERA-India's research outreach activities, MERA-India is carrying out two virtual lecture series- "Lecture Series on Infectious Diseases" and "Distinguished Lecture Series", in which each month renowned scientists and experts from different fields are invited to deliver lectures. These lectures have witnessed huge participation with attendees from across the globe
 - Released the first landmark report on the "Impact Evaluation of Antiretroviral Treatment, under the National AIDS Control Programme in India". Antiretroviral Treatment (ART), the multidrug treatment for HIV infection, is provided free to adults and children living with HIV across India by NACO. The study demonstrated the high impact of antiretroviral treatment and showed that the chance of death was halved among people on ART after

5 Years of treatment. The probability of Tuberculosis was lower among persons on ART as compared to those not on ART. Cohorts of people who had initiated ART in 2012 and 2016 and continued taking treatment underwent viral load testing and over 90% showed that the virus in their blood was adequately suppressed. Over 70% of beneficiaries of ART reported 'good' or 'very good' quality of life overall and 82% were productively employed. The ART programme under NACP was found to be very cost-effective.

- **Non-Communicable Diseases & Nutrition**

- **Released “Clinico-pathological Profile of Cancers in India: A Report of Hospital Based Cancer Registries, 2021”:** It is based on eight-year data of cancer cases from 96 HBCRs' under the NCRP. The data pertains to all diagnosed and treated patients of confirmed malignancies reported to these centres across the country. The report presents a general overview of the proportion of cancer sites relative to all sites, cancers in sites associated with tobacco use, childhood cancers and detailed chapters for cancers in various organs sites, which include head and neck, gastrointestinal tract, lung, prostate, central nervous system, thyroid, kidney, bladder, childhood and gynaecological cancers including breast. A total of 1332207 cancer cases were registered from 96 hospitals under the NCRP during 2012-19. Out of 610084 cancers, 319098 (52.4%) cancers were reported in males, and 290986 (47.6%) in females. Childhood cancers (0-14 years) comprised 4.0% of all cancers. Cancers in sites associated with tobacco use comprised 48.7% of cancers among males and 16.5% among females.
- Released a report titled “Profile of cancer and related health indicators in the Northeast Region of India”. The report projects that the number of new cancer cases in the north east region (NER) is likely to increase to 57,131 by 2025, in comparison to the estimated 50,317 in 2020. These estimates are based on cancer data compiled by eleven Population Based Cancer Registries (PBCRs) in all the eight states. The Report also includes data from seven Hospital Based Cancer Registries (HBCRs) in Assam, Manipur, Mizoram and Tripura from 2012 to 2016.
- Released MUDRA Toolbox a collective effort by seven leading centres in India NIMHANS (Bangalore), AIIMS (New-Delhi), SCTIMST (Trivandrum), NIMS (Hyderabad), Apollo Hospital (Kolkata), Manipal Hospital (Bangalore), and Jawaharlal Nehru Medical College. MUDRA Toolbox is a pioneering initiative undertaken by ICMR Neuro Cognitive Tool Box (ICMR-NCTB) consortium to transform India's dementia and mild cognitive impairment research and clinical practices.
- Released First comprehensive estimates of disease burden from neurological disorders and their trends in every state of India from 1990 to 2019
- **India Hypertension Control Initiative:** The project has been expanded to 100 districts in 19 States covering more than 7800 health facilities. More than 1.7 million hypertensive patients and more than 0.4 million diabetes patients have been registered. Blood pressure control rates in patients during quarter one of 2021 ranges from 33% to 61 % among the States.

- **Stroke Care pathways using Mobile Stroke Unit:** Stroke Units have been set up at AMC, Dibrugarh, TMC and BCH, Tezpur. Mobile stroke units are in place at Tezpur and Dibrugarh. TMC, Tezpur has no neurologist and physicians have been trained to manage stroke. TMC, Tezpur stroke unit has done thrombolysis in 4 patients whereas BCH has done thrombolysis in 6 patients so far. The MSU at Tezpur completed its dry run. Two patients called for MSU at Tezpur. One was hemorrhagic stroke case, whereas other was that of stroke mimic. The CT scanner in MSU at AMC, Dibrugarh was used in one patient to identify ischemic stroke patient and was thrombolytic drug within 3 hours of symptom onset.
- **Mission Delhi:** This project uses motorcycle ambulance to provide pre-hospital thrombolysis to STEMI patients. The call centre at AIIMS received 263 emergency calls for which motorcycle ambulance was sent and 586 ECGs were done and transmitted to AIIMS. Of these 114 were cardiac emergencies with ECG changes, there were 36 acute coronary syndrome cases of which 18 were STEMI cases. The team gave thrombolytic therapy to 11 of these STEMI patients at their door and the seven patients who were not eligible for thrombolysis were brought to hospital and Primary PCI was done in 3 cases and rescue PCI in 2 cases.
- **STEMI ACT:** This project aims to improve thrombolysis rates using hub and spoke model in a district. The hub is a medical college and spokes are CHCs, Civil hospital and District hospital. This project has been initiated in 7 districts of 6 States. The centre at Shimla, HP has successfully implemented the project in Shimla district where the spokes thrombolysed 52 STEMI patients and hub thrombolysed 60 patients. In April 2021, there were 47 cases of ACS of which 27 were STEMI cases. Of these 27 patients, 16 were referred to hub hospital by spokes; 10 out of 16 patients were thrombolysed at SPOKE centres (civil Hospital, Rohru; MGMS, Khaneri, Civil Hospital, Nerva; CHC, Kotkhai); 5 out of 11 patients were thrombolysed at Hub hospital. Twelve patients were out of window period.
- **Biomedical Informatics (BMI)**
 - **National COVID-19 Testing Data Management System**

The system collects individual demography, travel history and category along with test information including sample type, genes and CT values for all the testing types (RT PCR, CB NAAT, TrueNAT and RAT). The system gets input from (i) Laboratories submitting data directly to the system (ii) Sample collection data through linkage with RTPCR app (iii) Data pushed by API from state (UP, Bihar, Andhra Pradesh, Kerala and Telangana) applications. The system has collected approx. 60 crore fifty eight lakh eighty five thousand seven hundred sixty nine (as of Oct 28, 2021) individual testing records from multiple labs across all the states of India. Different stakeholders (Cabinet Secretariat, PMO, MoHFW, ICMR, State Health Secretaries, State Surveillance Officers, District Magistrates/Collectors and District Surveillance Officers) have been provided with role based dashboards providing real-time access to tests conducted, positives, test positivity rate, State and Lab TATs. In addition to dashboards, the stakeholders (NDMA, MoHFW, NIC, NHA and States) have also been provided with specific APIs for feeding data into their applications.

- National COVID Kit Validation System

The system is developed to improve efficiency in kit validation process. The system consists of three modules: (i) Vendor module where a vendor registers the kit for validation, view progress of the kit validation process and visualize/download validation results (ii) ICMR module where ICMR can view/accept/reject the submitted kit information, assign the kit to validation centre and approve the results for dissemination (iii) Validation centre module where the selected centre uploads the validation results after testing the kit. Real-time data analytics have been developed for different stakeholder and regular reports are being shared with stakeholders

- Lab Capacity and QC/QA Management System

COVID QA-QC portal has been designed and developed for maintenance of quality control data for labs. All the labs registered for COVID testing in the ICMR portal, undergo a quarterly quality control protocol where few positive and negative samples are sent to the QC lab for testing. QC process is a three-tier process. On the top level is NIV, Pune which is the national QC lab. All the QC labs perform the quality control activity with NIV Pune. The testing lab undergoes the same process with their designated QC labs. Presently, the portal has been launched for all the RT PCR labs in the country. The testing lab fills in the sample details in the portal. Similar sample details are entered by the QC labs. Both the test results are visible to ICMR, which are then marked as concordant or dis-concordant. The report is then visible online to both the QC and testing labs, thus enabling transparency in the entire process.

- Jal Jeevan Mission Portal

The department has developed an online portal for India's Jal Jeevan Mission for collecting data on water quality that will make it possible for users to get quality of drinking water tested through a network of nearly 2,000 labs across the country as well as the ones submitted individually using Field Test Kit (FTK).

- **New Infrastructure**

- Established Regional Medical Research Centre, Gorakhpur to address the regional health challenges of eastern belt of Uttar Pradesh. It was recently inaugurated by Hon'ble Prime Minister Shri Narendra Modi.
- Laid the foundation stone of new building of ICMR School of Public Health at National Institute of Immunology, Chennai by Hon'ble Union Health & Family Welfare Minister, Dr Mansukh Mandavia.
- Inaugurated a state of art BSL-3 facility at ICMR-National JALMA Institute of Leprosy and other Mycobacterial Diseases, Agra for undertaking research on high-risk pathogen. It was inaugurated by then Hon'ble Union Health & Family Welfare Minister, Dr Harshvardhan.
- Inaugurated new eco- friendly building of ICMR- National Institute for Research in Environment Health, Bhopal. It was inaugurated by then Hon'ble Union Health & Family Welfare Minister, Dr Harshvardhan.

- **Other Achievements**

- Established “ICMR at IITs” by setting-up Centres of Excellence (CoE) for strategic Make-in-India product development and their commercialization in the medical device and diagnostics sector.
- Released the ‘National Guidelines for Data Quality in Surveys’. The guidelines for Data Quality in Surveys’ aims to provide comprehensive guiding principles and best practices for mitigating errors and biases that may occur during survey design, data collection and analysis, thereby ensuring data quality in surveys, specifically for demographic, health and nutrition surveys.
- UNEP and ICMR launched a new collaborative project- “Priorities for the Environmental Dimension of Antimicrobial Resistance (AMR) in India”, marking an important step towards recognizing and addressing the environmental dimension of AMR.
- Under various Fellowship Programs and financial support Schemes ongoing in the ICMR-Human Resource Development (HRD) Division, ICMR selected a total of 138 candidates (126 for Life Sciences and 12 candidates for Social Sciences) for Junior Research Fellowship (JRF)-2020, through national level exam, the result of 2021 is still to be declared. A total of 1252 medical/dental undergraduates were selected for ICMR-Short Term Studentship (STS)-2020 Program. Result for ICMR-Nurturing Clinical Scientists (NCS) Scheme is under review and still to be declared. Eleven (11) candidates were selected for the Award of ICMR-Post Doctoral Fellowship (PDF) in the year 2021. The MD/Ph.D. Program is ongoing in three universities and only six (06) students have joined in year 2021. Financial support for pursuing MD/MS/MCh/DNB/DrNB/MDS thesis was also granted to a total of 102 fellows. A total of four Adjunct Scientists have joined in the year 2021. There are two ongoing Chairs for ICMR-Dr. C.G. Pandit National Chair and in ICMR-Dr. A.S. Paintal Distinguished Scientist Chair, three are ongoing and two Chair positions are vacant for which applications are under review.
- Under International Cooperation, the existing partnerships in Health Research with various international organizations/agencies continued with 3 new MoUs with NHRC, Nepal; FIND, Switzerland & GARDP Foundation, Switzerland & 1 LoI with Min. of Health & Social Protection and Min. of Science, Technology & Innovation of Colombia signed during the year.
- One working level virtual meeting with FORTE, Sweden and a interactive meeting with NHRC, Nepal to discuss future plans were held. A total of 157 international projects (between Jan,21 to Oct, 2021) were approved in five meetings of Health Ministry’s Screening Committee (HMSC). Also organized the visits to ICMR Hqrs. for delegations from Myanmar, Brazil, Germany and Colombia.
- ICMR has processed 165 fellowships (approx.) and 30 ad-hoc projects (approx.) to support health research in different medical colleges, institutes & universities.

Annexure-I

Budget Estimate(BE)/Revised Estimate(RE)/Actual Expenditure(AE) 2020-21 and BE/RE (projected requirement) 2021-22 with AE upto 31.12.2021 and BE 2022-23 (projected requirement) in respect of Demand No. 45 - Department of Health Research

(Rs. in crore)

S. No.	Scheme/Programme	Budget Head	2020-21			2021-22			BE 2022-23	
			BE	RE	Actual Expr.	BE	RE	Actual Expr. upto 31.12.2021		
1	2	3	4	5	6	7	8	9	10	
1.	Secretariat-Social Services		42.00	38.30	28.77	45.00	39.00	24.80		48.00
2.	Human Resource Development for Health Research	Advanced Training in research in medicine and health International cooperation in medical and health research	34.00	18.00	16.32	27.00	27.00	16.91		30.00
			6.00	5.03	4.72	6.00	4.45	0.03		7.00
3.	Grant-in-aid Scheme for inter-sectoral convergence & promotion and guidance on research governance issues	Inter-sectoral coordination in medical, biomedical and health research Promotion & guidance on research governance issues.	27.00	19.00	15.97	27.00	25.00	12.46		27.00
4.	Managing epidemics and national calamities	Matters relating to epidemics, natural calamities and development of tools to prevent outbreaks	83.00	83.00	81.90	82.00	79.20	51.02		82.00
		Development of Tools to prevent Outbreaks of Epidemics	7.29	12.26	12.26	15.00	15.00	9.07		15.00
5.	Development of infrastructure for promotion of health research	Promotion, coordination and development of basic, applied and clinical research- Establishment of Multi-Disciplinary Research Units (MRUs) in Govt. Medical Colleges.	60.00	58.00	52.80	60.00	51.00	27.01		60.00
		Establishment of Model Rural Health Research Units.	20.00	16.00	11.39	20.00	18.00	11.07		20.00
6.	Indian Council of Medical Research (ICMR), New Delhi		1795.71	1697.71	1611.79	2358.00	2133.07	1429.78		2198.00
7.	Covid-19 Emergency Response and Health System Strengthening Package		-	2100.00	1275.00	-	526.28	489.24		-
8.	Prime Minister's Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) - Bio Security Preparedness and strengthening Pandemic Research and Multi Sector and National Institutions and Platform for One Health		-	-	-	-	140.00	-		690.00
Total			2100.00	4062.30	3124.59	2663.00	3080.00	2083.61		3200.65

Note: Figures include provision of Rs.104.00 crores in BE 2021-22 and Rs. 89.26 crores in RE 2021-22 and Rs. 104.00 crores in BE 2022-23 under NE component.

* BMHRC has now been merged with ICMR.



सत्यमेव जयते

DEPARTMENT OF HEALTH RESEARCH

Ministry of Health & Family Welfare

Government of India

New Delhi