

**GOVERNMENT OF INDIA
MINISTRY OF HEALTH AND FAMILY WELFARE
DEPARTMENT OF HEALTH RESEARCH**

**LOK SABHA
UNSTARRED QUESTION NO. 4763
TO BE ANSWERED ON 23rd MARCH, 2018**

BIO-MEDICAL RESEARCH

**4763. SHRI AJAY NISHAD:
SHRI K.C. VENUGOPAL:**

Will the Minister of **HEALTH AND FAMILY WELFARE** be pleased to state:

- (a) whether bio-medical research work undertaken in the country are of international level, if so, the details thereof and if not, the reasons therefor;
- (b) the number of medical research centres/institutes functioning under Indian Council of Medical Research (ICMR), State/UT-wise along with the achievements therefrom;
- (c) whether the Government proposes to upgrade the said research centres/ institutes in the country to international level and whether the state of the art technology is proposed to be implemented in the medical sector;
- (d) if so, the details thereof and the assistance provided or proposed to be provided in this regard; and
- (e) the details of mechanism adopted by the ICMR to boost quality health research output by way of building alliances and partnerships in the country?

**ANSWER
THE MINISTER OF STATE IN THE MINISTRY OF HEALTH AND
FAMILY WELFARE
(SMT. ANUPRIYA PATEL)**

(a): Yes, ICMR is an apex and premier medical research organisation in the country of international level.

(b):

1. Andaman and Nicobar Islands – 01
2. Assam – 01
3. Bihar – 01
4. NCT of Delhi – 03
5. Gujarat - 01
6. Karnataka – 02
7. Madhya Pradesh – 02
8. Maharashtra - 04
9. Odisha – 01
10. Puducherry – 01
11. Rajasthan – 01
12. Tamil Nadu – 02

13. Telangana – 01

14. Uttar Pradesh – 02

Achievements of these institutes are annexed.

(c) & (d): The said research institutes have international recognition.

(e): ICMR has signed MoUs with a number National and International organisations in the research field. Under “Policy on Contributions and Partnerships”, partnership with Government and private sector is being encouraged for up-scaling, validation and translation activities.

Achievements of ICMR (Institute-wise)

ICMR-National JALMA Institute for Leprosy & Other Mycobacterial Diseases (NJILOMD), Agra

- **Tested adjunct role of MIP in treatment of TB with standard regimen:** in pipeline for acceptance by the respective National programme.
- **Extensively researched the Immunotherapeutic and immunoprophylactic role of MIP in leprosy:** The MIP vaccine is now being taken up by NLEP under IR mode.
- **TIE-TB project:** A unique Active Case Finding Model comprising of Mobile TB diagnostic van for diagnosis of TB was initiated in 17 districts in 5 states.
- **National level mycobacterial reference laboratory** for providing clinical samples to various researchers at national level.
- Contributed in **understanding the transmission of leprosy** by using combination of molecular methods and traditional epidemiology on transmission aspects of leprosy.
- Contributed to **Revised National Tuberculosis Control Programme (RNTCP)** and **National Leprosy Eradication programme (NLEP)**.

ICMR-National Institute of Occupational Health (NIOH), Ahmedabad

- **Health Status of Coal Mines workers:** Study suggest measures like using protective appliances (e.g. PPEs), pre-placement- and periodic medical examination.
- **Indoor air pollution from biomass combustion and health hazards :** 12 PAHs were identified which are reportedly hazardous for human health.
- **Environmental cum epidemiological study on arsenic toxicity from surface and underground water**
- **Occupational health assessment survey among asphalt associated job workers in India:** Suggests that road paving associated job workers are under risk of development of adverse health effects
- **Efficacy of Personal Colling Garment (PCG):** Developed to protect workers who are exposed to hot environment.

ICMR-National Institute of Traditional Medicine, Belagavi

- **Validation of traditional medicinal practices for Arthritis and Dengue:** Results of arthritis is expected to be translated soon through IPR registration, etc. Similarly, an AYUSH formulation for Dengue is under clinical evaluation with modern parameters for evaluation.
- **Herbal remedies for improving quality of life of critically /terminally ill patients:** Studies have been taken up to find the beneficial role of cocoa powder on cancer cell lines and cancer induced models.
- **Established ‘School of Traditional Medicine’ with an ‘Integrated clinic’ to validate the traditional medicine practices and generate human resource in the area.**
- **Outbreak investigations, referral services and support to State Health Services:** Reported rising number of diphtheria cases in the State of Karnataka. A policy brief has been submitted to the Govt of Karnataka by ICMR on ways to reduce mortality.
- **Model Rural Health Research Unit at Sirwar, Raichur is being set up:** Baseline study conducted this year identified Pregnancy Induced Hypertension as a major problem in the region. A study conducted in this area found anaemia and malnutrition to be high.

ICMR-National Centre for Disease Informatics and Research, Bengaluru

- **Developed “Cancer Samiksha”:** a web based tool on assessment and analysis of cancer (<http://ncdirindia.org/cancersamiksha/>)
- 10 States - Assam, Arunachal Pradesh, Gujarat, Haryana, Karnataka, Manipur, Mizoram, Punjab, Tripura and West Bengal **have notified cancer as a notifiable disease.**
- **Developed NCDIR e-Mor:** an electronic mortality software .The software is being deployed in various hospitals and public health systems.
- Prepared **Report on Cancer Burden in North Eastern States (2012-2014) :** revealed that high burden of exposures such as tobacco consumption, alcohol, indoor air pollution are contributing to high incidence of cancers in north eastern states.
- Released **National Ethical Guidelines for Biomedical & Health Research Involving Human participants and National Ethical Guidelines for Research Involving Children**

ICMR-National Institute for Research in Environmental Health (NIREH), Bhopal

- **Follow up of about 30,000 toxic gas exposed survivors for their health problems**
- **Services to Respiratory Diseases OPD of Kamla Nehru Gas Rahat Hospital by the Pulmonologist of NIREH .**About 2,000 respiratory disease patients were examined and advised treatment

ICMR-National Institute for Research in Tuberculosis (NIRT), Chennai

- **Clinical trials aiming to shorten TB treatment to 4 months using fluoroquinolones in pulmonary and extra pulmonary TB :** The results would go a long way in deciding future TB therapy in India.
- **Clinical trial testing the dosing schedule of treatment in HIV-TB coinfection** indicates daily regimen to be more efficacious.
- **Multi-centric cohort study of relapse in pulmonary TB** treated under RNTCP was completed and detailed analysis is underway.
- **Pharmacokinetic study of Rifabutin :** showed that 300mg thrice weekly and 150 mg daily were similar suggesting to the programme that either doses may be used.
- **Characterized the prevalence and pattern of drug resistance mutations** in ART-naive and ART-exposed HIV-1-infected children from south India.

ICMR-National Institute of Epidemiology (NIE), Chennai

- **In-country data verification for Elimination of Mother-to-Child Transmission** of HIV and Syphilis in 6 States in India, 2017
- **HIV sentinel Surveillance** among ANCs and HRGs
- **Strengthening Tuberculosis and HIV detection** and management through intensified case finding in Central Jail, Aizawl, Mizoram
- Process Evaluation of **Integrated Management of Neonatal and Childhood Illness (IMNCI)** Program
- **Prevalence of Leptospiral infection** among fever-case-patients seeking referral public health facilities in the peri-urban areas of Chennai and distribution of leptospiral genotypes and serovars
- **Integrated Road Traffic Injury Surveillance system (IRIS)** Chennai, Tamil Nadu
- **Hospital Based Sentinel Surveillance** of S. pneumoniae and other Invasive Bacterial diseases
- **Health-needs assessment (HNA) of selected hill tribes (Palliyar and Muthuvan)** in Western Ghats of Tamil Nadu and, to estimate the disease burden amongst them
- **NIE-ICMR-WHO Ethics Course** For Indian Ethics Committees
- **Status of labelling, drug information and branding in marketed anti-diabetic Siddha formulations:** Cross-sectional study: Chennai, Tamil Nadu
- **Health systems preparedness** for interventions for diabetes, hypertension, chronic respiratory diseases, cardiovascular disease and cancers and deaths due to non-communicable diseases among the tribal population in India

- Coverage Evaluation Survey: **Measles Rubella Vaccination Campaign** Phase 1 (India CES-MRVC-P1, 2017)
- A multi-centric study to estimate the **sero-prevalence of dengue virus** infection in India
- **Risk factors of scrub typhus among children** and progression to AES in Gorakhpur division, Uttar Pradesh

ICMR-National Institute of Malaria Research (NIMR), Delhi

- Monitoring of vector susceptibility to the insecticides being used in the programme in different ecotypes . -input to DDT Mandate committee.
- Monitoring therapeutic efficacy of antimalarials: Switch over from chloroquine to Artemisinin based Combination Therapy (ACT; AS+ SP) to ArtemetherLumefantrine (ACT; AL).
- Ban on Artesunate oral monotherapy.
- Evaluation of LLIN- Introduction in the programme
- Three Biolarvicides –*Bacillus thuringiensis israelensis*(*Bti*), *Bacillus sphaericus* (*BS*) and *Bti*Aqueous Suspension.
- Diflurbenzuron and {Insect Growth Regulator (IGR)} Larvicides .
- Pirimiphos Methyl (Chemical Larvicide)
- Chemical LarvicideFenthion withdrawn from the programme based on evaluations.
- Biological control agents- larvivorousfish .
- Phase III clinical trials of antimalarials led to registration with regulatory authority: Alpha beta Arteether, Bulaquine, Arterolanepiperaquine, Artesunateamodiaquine, artesunatemefloquine, DihydroartemisininPiperaquine.
- Evaluation of malaria rapid diagnostic tests (paracheck and parahit) leading to introduction in the programme.

National Institute of Pathology (NIP), New Delhi

- Molecular diagnostics for Chlamydia, Leishmaniasis and Tuberculosis
- Cultured epithelial graft for treatment of burns patients
- Live attenuated Leishmania parasite as vaccine candidate for visceral leishmaniasis/kala-azar (Collaborators US-FDA) US and Indian patent granted
- Breast Cancer Cell lines of Indian Origin
- Pathological studies in autopsies of Bhopal gas victims to analyse the effect of Methyl isocyanate

National Institute of Medical Statistics (NIMS), New Delhi

- Collaboration with CBHI and ECTA and Development of Health Policy Reforms Options Data (HSPROD) base and collected large number of health reforms in India as on the website of MOHFW.
- Establishment of Clinical Trials Registry – India (CTRI), in collaboration with DST and WHO.
- Established the NIMS as the nodal Institute for:
 - NACO's programme on HIV Sentinel Surveillance, Modelling Estimation and Projection of HIV/AIDS in India.
 - Implementation of IDSP-NCD risk factor survey.
 - Conduct of integrated behavioural and biological assessment along national highways (IBBA-NH) among truckers for HIV epidemic in India.

ICMR-National Institute of Nutrition (NIN), Hyderabad

- Mapped **B12 deficiency** in 9 states.
- Established **Nutrition Surveillance System** in 6 states
- Carried out **NCD Monitoring** activities in Telangana and Andhra Pradesh.
- Introduction of **Multi-component health and Nutrition Intervention** in 14 high burden districts in Jharkhand, Gujarat, Andhra Pradesh and Telangana.

- The results of a study on fatty acids reinforce the current **recommendations of restricting the intake of trans fats**, moderate the intake of n-6 PUFA and increase the intake of n-3 PUFA for the prevention of diet related chronic diseases including NAFLD.
- Dissemination workshop on “**Health and Nutrition awareness**” was conducted for ICDS and Health functionaries working with Chencus.
 - Determined Nutritive Value of Indian Foods
 - Developed Double Fortification of Salt (DFS)
 - Studied efficacy of Iron folate supplementation in pregnancy
 - Exploded the protein myth and highlighted the calorie gap as a major bottle neck in Protein Energy Malnutrition (PEM)
 - Established Recommended Dietary Allowances (RDA) for Indians
- Formulated dietary guidelines for Indians

ICMR-National Institute for Research in Tribal Health (NIRTH) , Jabalpur

- Malaria Elimination Demonstration Project (MEDP)** in Mandla district of Madhya Pradesh initiate The goal of Malaria Elimination Demonstration Project (MEDP) is to demonstrate elimination of malaria and prevention of re-establishment of malaria is feasible in a high-endemic region of India.
- Outbreak of cholera in tribal district Katni** was investigated and appropriate suggestions regarding mitigations were given.
- An outbreak of Chronic Kidney diseases (CKD) failure** was investigated Supebeda Panchayat of Deobhog Block of District Gariaband, Chhattisgarh.

ICMR-National Institute of Cholera and Enteric Diseases (NICED) , Kolkata

- Establishing **community-based enteric fever surveillance** for estimating typhoid fever burden as a prerequisite for implementation of TCV at the national level.
- Continuing **hospital-based diarrhoeal disease surveillance** with mapping of enteric pathogens and their antimicrobial resistance to facilitate deployment of evidence-based responses undertaken by the state health authorities.
- Establishing **efficacy of pentavalent rotavirus vaccine in a multi-centric RCT**, which aided its introduction in the national immunization program.
- Developing **candidate vaccines against shigellosis and typhoid**.
- Identification of **antimicrobial resistance in bacteria belonging to *Enterobacteriaceae*** causing neonatal sepsis, mechanism of resistance and resistance gene transmission mechanisms, developing cationic antimicrobial peptide-based therapy for sepsis caused by Gram Negative Bacteria.
- Continuing active participation in **the multi-state surveys for Soil Transmitted Helminth (STH) infection** under the joint program of Ministry of Health, GOI and respective state health authorities for school aged children.

ICMR-National Institute for Research in Reproductive Health (NIRRH), Mumbai

- Conducted baseline survey in two tribal blocks** in Palghar district of Maharashtra: to improve health and nutritional status of vulnerable segment of population by implementing multi-component health and nutrition education intervention as a sustainable model of intervention.
- Prepared **Standard Operating procedures for Linking HIV with Family Planning services** in public health settings: Outcome- Many unintended pregnancies are prevented by use of dual contraception by PLHIV.
- Demonstrated **Estrogen**, the female hormone, to be involved in **regulating spermatogenesis and male fertility**.
- Developed **PBIT**, an online webserver for identification of drug targets for infectious diseases (www.pbit.bicnirrh.res.in.)
- Initiated a **multidisciplinary model of care for women with PCOS** :with a team of IVF specialist, endocrinologist, dermatologist, dietician and yoga expert. This is a

unique platform wherein research and services meet and is **first of its kind** in the government research Institute in India.

ICMR-National Institute of Immunohaematology (NIIH), Mumbai

- Established **Advanced Centre for Diagnosis and Management of Primary Immunodeficiency Disorders (PID)**
- Developed **a nanoparticle based point of care technique for the diagnosis of von willebrand disease (VWD)**: No commercial rapid test kit is available for diagnosis of any of the common bleeding disorders
- Discovered **a novel molecular mechanism predominantly responsible for weak D variant in Indian population**
- Demonstrated **siRNA silencing of protein C gene to improve the clinical phenotype of hemophilia A**
- Demonstrated **Interplay of miRNA expression and the epigenetic factors in sickle cell anemia patients following hydroxyurea treatment**

ICMR-National Institute of Cancer Prevention and Research (NICPR), Noida

- Developed a hand-held device, “**Magnivisualizer**” with digitized image capture options for detection of precancerous cervical lesions
- Developed “**India Against Cancer**” website, a bilingual (English & Hindi) web portal that provides information on the leading cancers in India and promotes cancer awareness
- Developed “**OrCanome**”, a comprehensive database with genomic, transcriptomic and proteomic information of genes dysregulated in oral cancer
- Developed natural product “**Plant based anticancer activity database**” for facilitating traditional drug discovery. Natural antioxidative agent curcumin has been demonstrated to be an anti-HPV molecule.
- Developed first ever “**Global database for cervical cancer genes (CCDB)**” involved in disease progression

ICMR-Rajendra Memorial Research Institute of Medical Sciences (RMRIMS), Patna

- Conducted In-depth review of kala-azar programme to find out gaps and strengthening of elimination strategies
- Established Slow release emulsified suspension (malathion) as an alternative to DDT in vector control.
- Miltefosine, the first ever oral drug, for treatment of Kala-azar and PKDL; Paromomycin and amphotericin B registered by DCGI for Kala-azar treatment; and Single dose ambisome and combination therapy of miltefosine and Paromomycin introduced in programme.
- Established insectarium for sandfly rearing, regeneration and colony maintenance; and Leishmania Parasite repository & Sera bank.
- Developed Monitoring and evaluation toolkit for IRS in consonance with WHO-TDR for vector control

ICMR Vector Control Research Centre (VCRC), Puducherry

- Safety study on **triple drug administration** for LF elimination
- Xenomonitoring protocol to evaluate **the impact of MDA** for LF elimination
- ZIKAV surveillance** through networking in the country
- Implementation study to **minimize risk of transmission of JE** through vector control intervention measures in Gorakhpur, UP
- Mapping of insecticide resistance** among malaria vectors in Southern Odisha

ICMR-National Institute of Virology (NIV), Pune

- Reporting of First Zika Virus case in India-
- Establishing Zika Surveillance network in India
- Training & supply of Zika Diagnostic reagents to 30 laboratories.
- Discovery of 03 new viruses
- Surveillance of fever, influenza like illness and dengue like illness has helped to know the base line incidence of viral diseases syndromes and seasonal variation of various viral bacterial diseases in community.
- Measles diagnostic IgM kit technology transferred to M/Cadila, Ahmedabad

ICMR-National AIDS Research Institute (NARI), Pune

- Supports National AIDS Control Program (NACP) through **data validation for elimination of mother to child transmission** and providing recommendations for documentation of elimination planned for 2020 by GOI
- Preparation of **modules based on evidence generated for prevention of intimate partner violence.**
- World Health Organizations (WHO) has recognized NARI as a **center for pre-qualification of diagnostic test kits.**
- In the non-HIV area, generation of **causal evidence for Acute Encephalitis Syndrome (AES) as caused by scrub typhus** and community engagement to implement control of JE.

ICMR-Regional Medical Research Centre Bhubaneswar

- Study on Mid-Day Meal Programme in Odisha:** Various e-study tools have been developed at the levels school, school monitoring committee, parents, cluster, block are tested on pilot basis. The study is planned to implement in various districts in 3 zones in the state.
- A study on the Effectiveness of Food supplementation on Treatment Outcomes and Nutritional status of Adults with Pulmonary Tuberculosis in Odisha:** Difficult to reach areas, lack of pre-treatment counselling are few of the reasons quoted for lack of follow-up, high default rates and hence low cure rate in this region.
- Enhancing **bio risk mitigation awareness** in public health community and creating laboratory networks for enhanced diagnostic capabilities to deal with surveillance and outbreaks of high-risk group viral pathogens causing viral haemorrhagic fevers and respiratory infections.
- Anthrax in Odisha** (Koraput, Rayagada, Malkangiri, Sundargarh)-Cutaneous Anthrax was found to be high, attributing to slaughtering, butchering and skinning of animals by male respondents.
- Asymptomatic malaria infection below 5 years** and mode of transmission in Kandhamal district

ICMR-Regional Medical Research Centre Dibrugarh

- Developed the **capacity to provide diagnosis for 41 different viral infections** within 48 hours. A total of ~3000 samples have been tested for ~9,000 different viral pathogens in last 1 year.
- Developed “**Malaria Epidemiology Database and Retrieval system of North East, India**” and identified lead molecules against Malaria, Hepatitis and Cholera through virtual screening.
- Evaluated the **effectiveness of single dose of SA-14- 14-2 (JE) vaccine** administered in adults (2012-16): Found to be effective.

- Established **evidence of major rickettsial infections** viz., spotted fever group rickettsiae (SFGR) and typhus group rickettsiae (TGR) beside scrub typhus (ST) as important vector borne disease in NE India.
- Community Survey of malaria showed a **significant gradual decrease in malaria** positive cases from 153 positive cases (1st survey) to 7 positive cases (5th Survey).
- Drug sensitivity testing of MTBC isolates collected from Sikkim has revealed **significantly high number of multi drug resistance (MDR) TB cases.**
- Providing **early warning for occurrence of Japanese encephalitis** at village level in three districts of Upper Assam for 2017 (viz., Dibrugarh, Tinsukia and Sivasagar) in a GIS format.
- Demonstrated the **Group B streptococci (GBS) colonization among pregnant women** at 35-37 weeks, also established GBS as an invasive isolate from neonatal sepsis cases. Hence routine antenatal screening could be of public health importance
- Development of a **community based IEC intervention module for dietary salt restriction** and reduction of blood pressure
- Association of promoter hyper methylation of TP53, BRCA1 and BRCA2 genes with increased risk of breast cancer in females from NE region of India has been identified.
- Identification of the association of pro-inflammatory and anti-inflammatory cytokine genes with the risk of gastric cancer in Tripura and Nagaland.

ICMR-Regional Medical Research Centre Port Blair

- Substantial reduction in filariasis prevalence** among the Nicobarese of Nancowry group of islands through mass distribution of DEC fortified salt
- Health profile and burden due to infectious and non-infectious diseases** among the particularly vulnerable tribal groups viz., Onges, Shompen and Andamanese

ICMR-Desert Medicine Research Centre (DMRC), Jodhpur

- Promotion of **protective devices for the prevention of hypertension** in brine (salt) workers.
- Diagnosis, phylogenetic analysis and molecular characterization of H1N1 virus.**
- Screened and established the **Sickle Cell Disease in the tribal population** of Rajasthan.
- Established the **Trans Ovarian Transmission in *Aedes aegypti* vector.**
- Mapping of **insecticide resistance in malaria and dengue** vector of the state.
- Improving **Health and nutritional status of vulnerable segment of population** by implementing multi-component health and nutrition education intervention