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Prime minister's food for thought: low nutrition in children

Prime Minister Narendra Modi now wants to train prospective mothers on food habits and a healthy lifestyle. Also on the list is giving nutritional training to grandmothers. Modi has directed the Union ministry of health and the Union ministry of women and child development (WCD) to work on these areas and a compliance report be submitted at the earliest. He wants that an online certificate course be devised, including in regional languages, for prospective mothers, on food habits and other aspects of lifestyle to improve nutrition level in children. The target group should be girl students in Class X-XII. The Prime Minister has also directed the ministry of WCD to examine how grandmothers can be trained to support prospective and lactating mothers.

“PM wants to identify and map areas/pockets prone to malnutrition. Location-specific factors should be identified and recommendations should be made for addressing the same,” said a senior WCD ministry official. To deal with the problem, director general of the Indian Council for Medical Research (ICMR) proposed introducing millets in the public distribution system. The PMO has directed a joint examination of proposals by the Indian Council for Agriculture Research (ICAR) under the leadership of NITI Aayog and submitting of recommendations within a period of six months.

*New Indian Express
September 17, 2017*

India's first nutrition atlas goes live

Nutrition Atlas provides information on nutritional status of population groups at national and state levels, overview of nutrition-related deficiencies

India currently faces twin challenges in the nutrition sector – under nutrition manifesting in several health problems as well as increasing problem of overweight and obesity, contributing to the burden of non-communicable diseases. In order to provide a snapshot of all relevant data and information about nutrition, the Hyderabad-based National Institute of Nutrition (NIN) has developed the country's first Nutrition Atlas.

The Nutrition Atlas provides information and data on nutritional status of population groups at national and state levels, along with an overview of nutrition-related deficiencies, disorders and prevalence levels in various parts of the country. In addition, it provides information on nutrients, nutrient rich foods, nutritional deficiency disorders and a host of other topics.

The portal also includes information on nutrition rich foods and nutri-guide for various nutrients, minerals, essential amino-acids, fatty acids, dietary fibers and proteins, along with their biochemical cut offs, recommended dietary allowances, signs and symptoms and dietary sources. The Atlas is interactive and displays information in the form a user may select. The Atlas has been developed through a long drawn, cohesive and technical exercise by a multi-disciplinary team in the bioinformatics division of NIN. It makes

use of publicly available data sources like reports of National Nutrition Monitoring Bureau, National Family Health Survey, World Health Organisation and other public databases. The Dashboard acts like an information management tool, helping the user track data on under nutrition, over nutrition, overweight, obesity and communicable and non-communicable diseases. It can also provide different time trends on each of these parameters.

While public databases like data.gov.in provide data from various sectors include health, the Nutrition Atlas is a specific data portal on nutrition and health parameters. "The prevalence and incidence of various nutrition and health parameters have been given for all 679 districts, wherever such information is available in public domain," Dr Vishnu Vardhana Rao, senior scientist at NIN, who led the effort, told India Science Wire. "The data in the Atlas will be updated as and when new data is released public domain by organizations concerned," Dr Rao added. "This portal is useful to policy makers, programme managers, researchers, media, students and other stakeholders."

The Nutrition Atlas is available at <http://218.248.6.39/nutritionatlas/home.html>

Dinesh C. Sharma
Apnlive.com September 8, 2017

Research Priorities in Maternal, Newborn, & Child Health & Nutrition for India: An Indian Council of Medical Research-INCLN Initiative

Prioritization of research options in health is essential to plan for achieving efficient and impactful investment of limited resources against a large number of competing research options¹. There is an increasing need and effort to set research priorities in health in a systematic way using a sound and transparent methodology and through engagement of the various key stakeholder constituencies^{2,3}. Research priority setting (RPS) in India has traditionally been guided by a small group of experts, mostly identified from major metropolitan areas of the country. Subsequent to India's impressive yet inadequate improvement towards achieving Millennium Development Goals (MDGs)^{1, 4 & 5}, an expert group had convened on May 23, 2011 at the Indian Council of Medical Research(ICMR) Headquarters in New Delhi to discuss RPS. The participants observed that evidentiary gaps in the country impeded informed

action in Maternal ,Newborn, and Child Health and Nutrition (MNCHN) themes, and that an inclusive and transparent method should be adopted to decide the national research agenda. The agenda so developed should also identify areas for innovation and strategies to improve deliverability, efficiency, scalability and sustainability of existing interventions, avoid common blind spots in MNCHN research (e.g., still birth & neonatal health) and engage the multiple stakeholder constituencies including end users of any funded health research activity. This led to the formalization of the ICMR-INCLN collaboration for undertaking the national RPS exercise for MNCHN using the Child Health and Nutrition Research Initiative (CHNRI) methodology. Since 2006-2007, the CHNRI priority setting methodology has been increasingly acknowledged as a flexible yet systematic priority-setting method for ranking competing research options using an

objective, quantified and inclusive approach²⁻⁷. The method is opined to be effective at the national level where the results derived from inputs from national stakeholders can have a direct and prominent impact on the research investment policy⁸. As a major conceptual advancement, this method ranks the broadly defined competing research options that not only generate new knowledge but also synthesize evidence for efficient implementation of what is already known⁹. The ranking of these research options employs ‘crowd sourcing’ through the engagement of a wide range of stakeholder constituencies with due cognizance of their core expertise. The various dimensions of the research priorities are carefully examined by the experts using a predefined context and set of strictly defined scoring criteria. The collective optimism of the stakeholders, which can be considered as the ‘wisdom of the crowd’, helps in identifying research priorities through a democratic method of scoring, weighting and ranking of competing research options^{1,5}.

National Research Priority Setting (RPS) exercise for Maternal, Newborn, and Child Health and Nutrition (MNCHN)

The protocol was reviewed and approved by the Independent Institutional Ethics Committee of INCLN, and the exercise was undertaken between 2012 and 2016. The context, in which the research priorities were identified in this exercise, are provided in [Box 1].

The exercise was woven around four key structures, namely, the National Steering Group (NSG), the Thematic Research Subcommittees (RSCs) constituted for each of the four MNCHN themes (112 experts in India were identified based on active contribution to contemporary research), the Nation-wide Network for Crowd sourcing (experts of various disciplines related to MNCHN with due attention to regional representation from 256 institutions) and the Larger Reference Group (LRG) (84 members group) ministries, MNCHN programme managers, eminent researchers and representatives from research funding organizations. The list of participants in the Nationwide Network is provided in [Supplementary Table 1]. [The list of all participants in the exercise with respective institutional affiliation is available on www.inclentrust.org].

Box 1. Context of the Indian Council of Medical Research-International Clinical Epidemiology Network (ICMR-INCLN) National Research Priority Setting Exercise for maternal, newborn, child health and nutrition

Purpose: Priority setting in maternal, newborn, and child health and nutrition for efficient and rewarding investment in research using a systematic, transparent, inclusive and consultative method.

Geography: India (National) and three regional levels viz., Empowered Action Group (EAG) & North-Eastern States, Southern & Western States, and Northern States & West Bengal.

Target population: Women of reproductive age (15-49 yr); pregnant women, newborns (0-28 days), under-five children (0-59 months) and children (up to the age of 18 yr).

Major areas of concern for research: Conditions that together contributed to at least 75% of the mortality and morbidity burden in Maternal, Newborn, Child Health and Nutrition in India during 2012-2013 as per the available evidence and expert opinion.

Time frame: 2016-2025.

Stakeholder constituencies (public and private sectors, health and non-health sectors): Researchers, professionals, public health functionaries, policy makers, communities and their leadership, civil society and donor agencies.

Translation and implementation context: Public and private health systems of India and their existing as well as future policies and programmes.

Source: Ref. 11, reproduced with permission with minor modifications

The NSG for the exercise, co-chaired by the Secretary, Department of Health Research (DHR) and Director General (DG)-ICMR and the Executive Director of The INCLN Trust International, was formed with key officials from concerned Ministries, namely, Ministry of Health & Family Welfare (MoHFW) (National Health Mission, Child Health, Maternal Health and Nutrition Divisions, Directorate General of Health Services and DHR-ICMR), Ministry of Women and Child Development [Integrated Child Development Services (ICDS), Food and Nutrition Board] and Ministry of Science and Technology first and second round of crowd sourcing for pooling (Department of Biotechnology, Department of Science & Technology). There was a wide range of invited subject experts, Central and State programme managers, national and international donors and multilateral agencies, who were members. Two NSG meetings were organized, one at the initiation of the exercise to ratify the context and protocol (April 18, 2013) and second, at the conclusion for reviewing and endorsing the findings (February 4, 2016).

The Thematic RSCs contributed to research ideas in the first round of crowd sourcing, helped in refining

and consolidating the ideas into research options, finalizing the scoring criteria, participated in second round of crowd sourcing for scoring the research options and presented the results to the NSG for ratification.

The Nationwide Network of experts participated in the of research ideas and scoring the research options, respectively.

The LRG assigned relative weights to the five scoring criteria, namely answerability, relevance, equity, innovation and out-of-the-box thinking and investment on research.

The exercise was centrally coordinated by the RPS Management Team at the Executive Office of The INCLIN Trust International, New Delhi.

The RPS Management Team established a national network of 1066 experts from institutions across India during 2012-2013. During the same period, it completed an extensive review of literature (research, academic and policy documents) on burden of diseases of MNCHN in India and presented the summary to the NSG at its first meeting. The NSG decided that topmost causes collectively accounting for at least 75 per cent of mortality and morbidity burden (Areas of Concern) for each of the RPS themes so identified shall guide pooling of research ideas and subsequent framing of research options for priority setting. Between September and December 2013, 3498 research ideas were pooled from the nationwide network using custom-designed online software (1st round of crowd sourcing). The participation rate was 42.3 per cent [of the 1178 experts contacted (1066-national members and 112-RSC members), 498 experts contributed research ideas]. Several of these research ideas were narrations comprising more than one research idea spanning across themes, areas of concern and domains. With the help of RSC members (January 2014-February 2015), these were split and refined into 4003 research ideas that were further consolidated into 373 research options (Maternal: 122, Newborn: 56, Child: 101 and Nutrition: 94) (<http://inclintrust.org/inclen/pageid=8666>). Five criteria (answerability, relevance, equity, innovation and out-of-the-box thinking and investment on research) were identified and defined for scoring the research options (March-June 2015) [Box 2]. This was

done through a comprehensive review of criteria that had been used in previous exercises at national and global levels and iterative discussion with RSC members and national and international CHNRI experts (University of Edinburgh, Johns Hopkins Bloomberg School of Public Health and the WHO).

Scoring of the research options was done independently by 893 experts (of the 1536 experts approached; Participation rate: 58.1%) using a customized online (*SurveyMonkey.com*) platform (July-October, 2015) (2nd round of crowd sourcing). The scores obtained by the research options were adjusted with criteria weights as assigned by the LRG (November, 2015-January, 2016) as per standard CHNRI data analysis practices [\[10\]](#). The Average Expert Agreement (AEA) was also calculated for each research option score. The detailed methodology and process adopted for this priority setting has been published elsewhere [\[11\]](#). The research options were categorized into four domains; description, discovery, delivery and development.

Box 2. Criteria used for scoring the research options

Answerability: Can the research be done through ethical, transparent, well-designed, 'do-able' studies with the existing local and national capacities and or by strengthening the existing capacities through regional or global collaboration?

Relevance: Is it likely that the research would address a high burden condition and critical gap in knowledge?

Innovation and out-of-the-box thinking to resolve complex and refractory challenges: Does the new research have the potential for transformative change in the health system/ health care?

Equity: Is it likely that the research product will address the differences in health and nutrition that are systematically associated with social, cultural and economic hierarchies, ethnicity, gender, environment and geographic disadvantages, thereby reducing inequities?

Investment on research: Is it likely that the potential impact and benefits of the new knowledge on health/ nutrition will outweigh the considerations of investments on research?

Source: Ref. 11, reproduced with permission

In addition to national priorities, the States and Union Territories in the country were grouped into three sub national regions to obtain regional priorities [Empowered Action Group (EAG) and North-Eastern States, States in Western and Southern India and

States in Northern India (including West Bengal)] [Figure 1].



Figure 1: Geographical context of the ICMR-INCLN National Research Priority Setting Exercise for Maternal, Newborn, and Child Health and Nutrition (2016-2025) (Map courtesy: www.mapsofindia.com modified with permission)

The number of scorers ranged between 60 and 96 scorers across each region and theme. Therefore, four priority lists were obtained for each theme: one national and three regional priority lists. The NSG reviewed and discussed the ranked list of priorities and made focused observations on the patterns of research that had evolved as priorities and the possible interlinks between the priorities identified. It also discussed other potential priority research options that might not have made it to the topmost priority list. This helped enrich the structuring of the national research agenda and identify the way forward.

Outcome of the Research Priority Setting (Rps) Exercise in the Four Themes Top

About 43 per cent of all the research options scored pertained to the delivery domain and required implementation research methodology [Figure 2]. It was observed that in each of the four themes, a large proportion (70%) of the top ten prioritized issues were dealing with delivery domain of research and implementation of programmes. Amongst the top ten priorities identified at national level, delivery domain research options accounted for 80 per cent in maternal health, 70 per cent in newborn health, 60 per cent in child health and 70 per cent in nutrition themes.

Significant differences were also observed between national and regional research priorities for all the four themes. The AEA was very high for the top ten priorities of research in the four themes both nationally and regionally. There were research options in the top ten regional priorities under various themes that did not figure in the national priority list. The Table enlists the top ten identified under each theme by the exercise at the national level. Top ten priorities and their scores along with the national and region-specific ranks are provided in [Supplementary Table 2] (available at http://www.ijmr.org.in/articles/2017/145/5/images/IndianJMedRes_2017_145_5_611_215547_sm7.pdf). Key priority research options under each MNCHN theme are summarized below.

Maternal health

The network indicated the need for developing and evaluating screening checklists and management algorithms for severe acute maternal morbidities (SAMMs), near-miss events, high-risk pregnancies, post-partum haemorrhage, stillbirth, eclampsia and cancers. Development of point of care diagnostics and technological solutions for SAMMs, perinatal hypoxia and foetal distress were ranked as high priorities. Research on strategies to empower families and women for better self-care and timely care seeking, and skill enhancement (including role rationalization, task shifting and sharing) along with accountability of health providers at different levels were scored as important priorities. Process and impact evaluation of existing maternal health programmes to improve outcomes, developing implementation strategies to improve the quality of different aspects of maternal care in health system and expanding their coverage were considered important research areas. Development of pharmaceutical protocols for prevention and clinical management and novel technological solutions for identifying SAMMs, epidemiology of stillbirths and expanding coverage of reproductive tract infection (RTI)/sexually transmitted infection programmes and specific studies on symptomatic and asymptomatic RTI and its impact on stillbirth, low birth weight (LBW), intrauterine growth restriction (IUGR) and abortions were scored as important regional priorities.

Table. Top ten priority research options in maternal, newborn, and child health and nutrition themes at national level

Theme	Rank	Research option
Maternal Health	1	Development and validation of algorithms for prevention, early detection and management of severe acute maternal morbidities and near-miss events in resource-constrained settings
	2	Strategies to improve quality of care during childbirth in the public health system, for example, medical practices, LSCS, active management of third stage of labour, EmOC, biophysical profiling for foetal assessment, application of epidural anaesthesia during delivery; beneficiary counselling and communication inside the labour room
	3	Early identification, referral and management of high-risk pregnancies (having maternofetal morbidities including IUGR, stillbirths and preterms) at all levels of health care
	4	Introduction of a validated and cost-effective cancer screening programme of reproductive system for women in the community and health facilities
	5	Improving EmOC services [e.g., risk prediction, identification and communication; prompt referral; service availability (safe transportation, skilled personnel, capacity, logistic, blood storage); accountability; innovations]
	6	Assess blood transfusion needs, current availability and delivery mechanisms of blood for pregnant women based on PHC and CHC catchment areas in the context of prevailing burden of severe anaemia and post-partum haemorrhage
	7	Implementation research for effective delivery of evidence-based care protocols/algorithms for prevention and management of post-partum haemorrhage at different levels of care
	8	Improving maternal death audits, protocols and practices in the public health care system (body handling, support to family, communication, autopsy, death audit and causality ascertainment)
	9	Process and impact evaluation of public health programmes targeted for adolescents (ARSH, AFHS, RMNCH+A, RTI/STI screening services) in urban and rural areas
	10	Develop and validate a self-assessment check list for pregnant women to identify warning signs and need for care seeking
Newborn Health	1	Designing and evaluating curriculums for skill building and their retention for health personnel involved in newborn care in the community and at various levels of health care system (e.g., training in identification of warning signs, safe injection practices, administration of oxygen therapy, etc.)
	2	Engaging and empowering family members and community in the care of newborn (including family centred care): barriers, strategies to overcome, impact, cost-effectiveness
	3	Identifying appropriate and effective strategies (messages and channels of communication) to promote community awareness on newborn care practices and social mobilization for early healthcare seeking (including utilization of existing nutrition and health services) to prevent adverse outcomes
	4	Low cost, feasible, portable technological innovations in equipment to improve capacity (diagnosis, identification and management) and outreach for foetal & neonatal care (especially, LBW, preterm: CPAP, surfactant therapy, etc.) at various levels of the health system and their impact evaluation
	5	Improving the implementation (service availability, quality, programme management and referral chain robustness) of neonate centric programmes and services (RMNCH+A, JSSK, NSSK, IMNCI & F-IMNCI, SNCUs, etc.)
	6	Implementation of an integrated and comprehensive maternal and newborn healthcare package for delivering continuum of care: barriers, strategies to overcome, need for governance modification, maternal and newborn outcomes
	7	Strategies to scale up home-based newborn care: Role assignment and rationalization for frontline workers, barrier identification and mitigation, cost-effectiveness, impact

Contd...

Theme	Rank	Research option	
Child Health	8	Strategies for social, economic, skill and knowledge empowerment of women and its impact on newborn, child and women's health	
	9	Establishing an innovative framework of monitoring and supervision with in-built mechanism of accountability to improve performance of frontline workers and health personnel involved in neonatal care (e.g., physical supervision; engaging PRIs and clients; use of ICT, telemedicine, maternal health)	
	10	Development and validation of protocols for the management of pregnant women at risk of pre-term delivery, in the healthcare system [e.g., nutritional, pharmaceutical (steroids, betamimetics, progesterone, nitroglycerine patches, prophylactic antibiotics, etc.), surgical, exercise and lifestyle counselling]	
	1	Develop locally relevant cost-effective strategies to expand the coverage of UIP by reaching segments of populations that are traditionally left out (address system 1 and community-Level 2 challenges) (i) VPD epidemiology, system capacity, cold chain, safety surveillance; (ii) Hesitancy, dropout, outreach strategies, KAP of care provider, community and clients	
	2	Improving administrative data quality and strengthening data-driven child health programme monitoring, action and accountability at PHC and district levels (e.g., line listing of households with children with NDD, use of ICT, develop novel indicators)	
	3	Development and validation of low-cost technologies for screening, referral and management of childhood pneumonia and ARI in the community and at various levels of health care (e.g., maternal health, point-of-care diagnostics & therapeutics, management protocols, etc.)	
	4	Strategies to promote WASH practices in the community to improve child health and nutrition	
	5	Development of cost-effective, feasible, validated point-of-care diagnostics for malaria in children for use at community and different levels of healthcare	
	6	Development of evidence-based guidelines for rational use of antibiotics for childhood morbidities in India: choice of antibiotic; route and delivery systems (e.g., nebulizers); duration of therapy; monitoring criteria; adjunct therapies	
	7	Development of an integrated child health programme for improving quality of life of children: challenges and barriers; strategies to overcome; feasibility across the country; effectiveness, cost-effectiveness	
Nutrition (Maternal and Child)	8	Establishing an effective and sustainable vaccine preventable disease surveillance programme (especially, measles and rubella, pneumonia and diarrhoea) in India [e.g., defining syndromes (fever and rash) and programme thresholds, forging PPPs, building upon polio infrastructure, using technology (maternal health, GIS, etc.)]	
	9	Identifying cost-effective strategies for supplementation of micronutrients and probiotics to prevent and control childhood diarrhoea, pneumonia and other infections	
	10	To establish nationwide multicentric antimicrobial surveillance and antibiotic stewardship programme for infectious morbidities during childhood	
	1	Identify and evaluate strategies to promote healthful lifestyle (physical activity and diet behaviour) in children through school and home-based interventions	
	2	Determine characteristics of mother friendly work place policies and governance framework that enable optimal care and nutrition of pregnant and lactating women and their children: identify barriers and challenges to implement (e.g., financial security and compensation for loss of pay, crèches at workplaces; provision for breast milk expression and storage for working mothers)	
	3	Process, impact and economic evaluation of NRCs for management of severely malnourished children (e.g., quality of care and client satisfaction; implementation gaps and challenges, reasons for underutilization and relapse; IEC to mothers during stay and at discharge; impact assessment, effectiveness of the RUTF used in NRCs and plausibility of indigenous preparation with the help of SHGs)	

Contd...

Theme	Rank	Research option
	4	Identifying strategies for engaging the male partners, families and communities to improve the nutrition of women of reproductive age group and under-five children
	5	Process, impact, and economic evaluation of community-based management of childhood malnutrition (including SAM): role, effectiveness and accountability of various stakeholders (including frontline workers)
	6	Impact and economic evaluation of WASH practices in the community on the nutrition of women and children
	7	Cost-effective strategies to improve the quality, quantity and coverage of food supplements provided under the Mid-Day Meal Programme to improve the nutritional status of school-going children
	8	Determining optimal growth trajectory of LBW (preterm, SGA) babies: nutrient and calorie requirements; strategies to minimize, mitigate development of chronic diseases
	9	Development and popularisation of improved varieties of traditional food items rich in micronutrients (e.g., iron rich millets): adoption of viable business models and modifying value and supply chains
	10	Strategies to overcome barriers and improve implementation of WASH practices in the community with particular focus on poor, socially disadvantaged groups

AFHS, Adolescent Friendly Health Services; ARI, Acute respiratory infections; ARSH, Adolescent reproductive and sexual health; CHC, Community Health Centre; CPAP, Continuous positive airway pressure; EmOC, Emergency obstetric care; F-IMNCI, Facility-based Integrated Management of Newborn and Childhood Illnesses; GIS, Geographic information system; ICT, Information and communication technology; IEC, Information, education, communication; IMNCI, Integrated Management of Newborn and Childhood Illnesses; IUGR, Intra uterine growth restriction; JSSK, *Jansani Shishu Suraksha Karyakram*; KAP, Knowledge, attitude and practice; LBW, Low birth weight; LSCS, Lower segment cesarean section; NDD, Neuro-developmental disorders; NRC, Nutrition rehabilitation centres; NSSK, *Naryjat Shishu Suraksha Karyakram*; PHC, Primary Health Centre; PPP, Public private partnership; PRI, *Panchayati Raj* Institutions; RMNCH-A, Reproductive maternal newborn child and adolescent health; RTI, Reproductive tract infections; RUTF, Ready-to-use therapeutic food; SAM, Severe acute malnutrition; SGA, Small-for-gestational age; SHG, Self help group; SNCU, Special Newborn Care Units; STI, Sexually transmitted infections; UIP, Universal Immunization Programme; VPD, Vaccine preventable diseases; WASH, Water, sanitation and hygiene

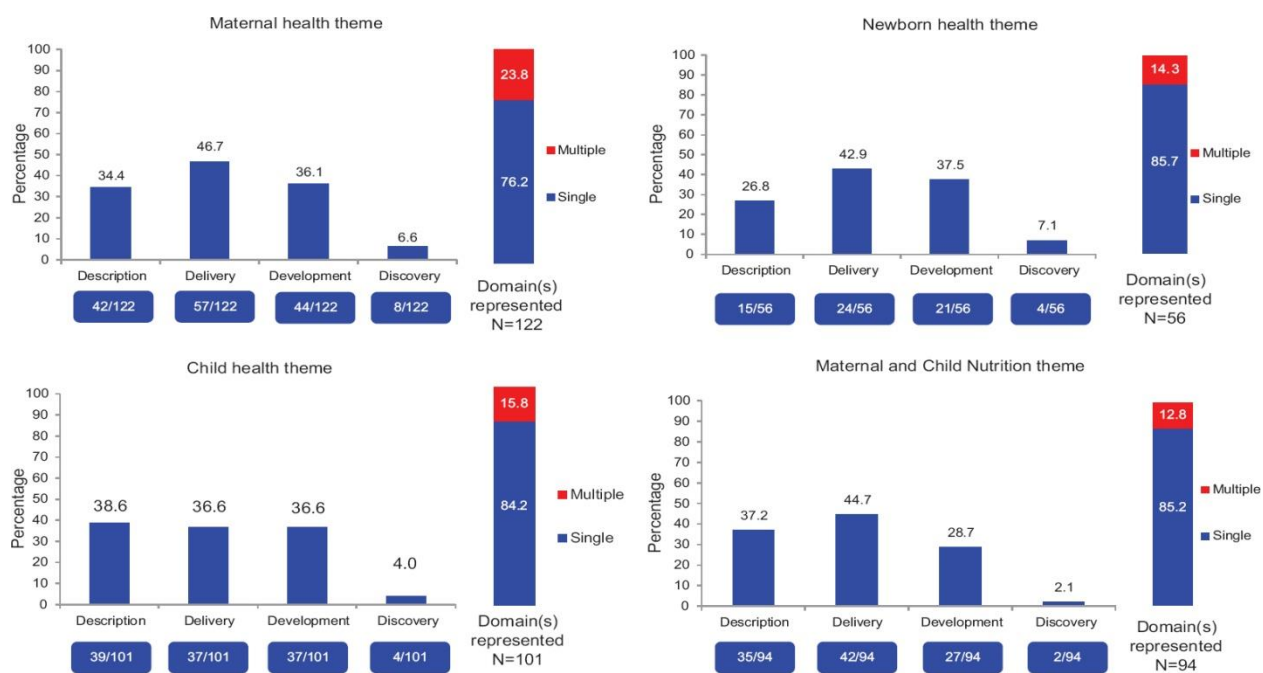


Fig. 2. Distribution of the research options in maternal, newborn, and child health and nutrition themes across the four domains of research

Newborn health

Newborn health priorities included strategies to improve delivery and quality of care of newborn health-oriented programmes skill and capacity enhancement of service providers including pre-service changes in the curriculum with in-built mechanisms of accountability, empowering mothers, families and communities to improve care seeking and quality of care in home environments multicentric antimicrobial surveillance and antibiotic stewardship programme development of point-of-care diagnostics/biomarkers for improving neonatal outcome, particularly for LBW neonates (preterm and IUGR) and neonatal sepsis; use of information and communication technology and utilization of m-Health to improve access to newborn care.

Child health

Six areas emerged prominently within child health: (i) issues related to coverage of Universal Immunisation Programme (UIP) and surveillance for vaccine preventable diseases; (ii) point-of-care diagnostics; (iii) use of technology and development of biomarkers for the screening, referral and management of common childhood illnesses, namely, diarrhoea and acute respiratory infections (ARIs) along with improved control and management of malaria; (iv) rational use of antibiotics; (v) early childhood risk factors of adverse metabolic outcomes in later life, namely, obesity and metabolic syndrome; and (vi) water and sanitation hygiene (WASH). Operational and implementation research to effectively deliver different child health interventions in an integrated manner, including improving administrative data quality for decision-making, achieving Indian Public Health Standards at facilities, engaging community and its resources for better care seeking and care at home, strengthening curriculums for skill building and retention of personnel, was another area that scored high at both national and regional levels.

Maternal & child nutrition

Creation of mother friendly environments was an interesting and important priority to address issues of maternal and child nutrition. Research options that

addressed the issues related to chronic diseases (i.e., lifestyle behaviour modification interventions, point-of-care diagnostics and biomarkers for metabolic syndrome and nutrition of women around conception to prevent foetal programming and consequent risk for foetal origin of adult diseases) also scored high. Research options for enhancing skill of care providers and empowerment of families and communities including behavioural change communication were prioritized as was observed for other thematic areas. Research options around WASH (environmental and water hygiene) were scored high by experts across the country. Importantly, these research options were seen across all four themes. Research options to explore the performance and impact of various nutrition and food supplementation programmes (including community-based management of childhood malnutrition, midday meal, ICDS and food items provided under National Food Security Programme), improvement of administrative data quality for decision-making and the multisectoral governance of agriculture-nutrition-health nexus were prioritized at both national and regional levels. Anaemia (including issues related to absorption of nutrients), growth trajectory of LBW and breastfeeding were important cross-cutting areas for both mother and child perspective and were scored high. The LRG had assigned the highest weight to the scoring criterion of 'relevance' and the lowest weight to 'investment in research'. The relative weights assigned to the five scoring criteria by different categories of members within the LRG did not vary significantly.

Discussion

The NSG strongly endorsed the research priorities identified by the exercise as appropriate for investment by different science and research departments of the Government of India and other national and international donor agencies and academic institutions over the next decade. It felt that the research agenda established with this exercise was in alignment with the national programme for achieving the recently enunciated health-related Sustainable Development Goals (SDGs) and will facilitate in accomplishing the unfinished agenda of the MDGs.

The exercise engaged experts who were well dispersed across the country. Thus, for the first time, regional

MNCHN research priorities could be identified. In all the four thematic areas, there were differences between the top ten national and regional priorities. This observation made it imperative to take cognizance of the unique research needs of the regions. Although not part of the current project, the NSG suggested that a systematic effort must be made to determine factors that could explain differences in national and sub national (regional) priorities. The States falling under the three regions vary in terms of their health infrastructure, programme implementation and governance, development indicators and availability of baseline information on various health indicators. This may to some extent, explain the differences in the emerging research priorities. Better understanding of these factors will be important to design need-based research programmes and policies for different parts of the country. There are significant rural and urban differences for the health challenges and these have assumed greater significance in the light of rapid urbanization in certain parts of the country. The rural-urban divide will also have to be kept in mind when decisions on research investments are made.

In addition to the top priorities identified by the exercise, the NSG highlighted some more areas of research in MNCHN themes that deserve investment. These included role of environmental exposures in the occurrence of neurodevelopmental disorders such as autism; early childhood care and stimulation for improving cognitive outcomes; better description of childhood cancers and their risk factors; unsafe abortions; innovations to solve the 'nutrition enigma'; factors interfering with iron absorption in both women and children; impact of fluoride on health and nutrition of women and children; micronutrient deficiencies and occurrence of congenital birth defects (e.g., neural tube defects with folic acid deficiency); research into processes and strategies to make multisectoral governance for human nutrition workable and effective and technology innovation for developing better tools of nutrition assessment.

As part of Infant and Young Child Feeding and Complementary Feeding research agenda, NSG has also suggested that it is important to innovate strategies to promote breastfeeding; innovation is also needed in the development of low cost nutritious and healthy processed foods that require minimal cooking,

are prepared from indigenous raw material and are appropriately fortified. This is important in the context of giving relief to severely time-constrained mothers who have now entered the workforce in a considerable way. Legislations affecting women and child health and nutrition are an important aspect to consider when research programmes and investment decisions are made. NSG suggested that researchers and funding agencies should work with Food Safety and Standards Authority of India in MoHFW to better understand regulatory issues related to food processing and related nutritional impacts.

Adolescents constitute almost 25 per cent of the Indian population. They suffer from several health problems that have been hitherto neglected. The foundation of several chronic diseases in the form of exposure to risk factors is laid during the adolescent years. NSG advised that adolescent-related research options were culled from the four themes and put forward separately with a caveat that scorers did not have an opportunity to see all the options in this section together. These have been put together in [Supplementary Table 3] (available at [Additional file 3]). However, as adolescent health was not stated as a theme on its own for prioritization, the research options that were chosen from within the other sections may not reflect the true priorities in adolescent health. An independent exercise may be undertaken where adolescent health is given a focus (One example where a gap can easily be seen is interventions to target adolescent boys or interventions looking at accidental injury or drowning which carry a huge burden in this age group).

The NSG acknowledged implementation research as an important area for consideration. This necessitates bridging the 'disconnect' between the research community, the policy and programme makers, implementers and the communities to achieve the desirable impact. Implementation research involves behavioral changes of health providers, and this cannot be overlooked. Some of the prioritized implementation research options can also help the national and State administrators to either commission research studies or decide to reset the way, in which the health system is working. This will also provide an opportunity for re-engineering health systems and programmes to improve their efficiencies: by dropping redundant programmes and/or making way for newer, refined and 'need of the hour' programmes. As a cross-cutting

research priority, the NSG strongly pitched the imperatives of improving the quality of administrative data for better use in decision-making at ground level.

The NSG members observed that several of the priority research issues were cross-cutting and common across the four themes; these should be brought together as common research agenda for MNCHN. This will make the research investment efficient and effective by addressing more than one theme at a time and also align the research projects with the national goal to achieve universal healthcare in India. As a follow up on this suggestion, the investigator team has prepared a separate list of cross-cutting research options [Supplementary Table IV available at http://www.ijmr.org.in/articles/2017/145/5/images/IndianJMedRes_2017_145_5_611_215547_sm9.pdf]. Similarly, as technology has cross-cutting usage, another list of research options related to research on the use of technology for health has been prepared for consideration by agencies with mandate to exclusively fund such research [Supplementary Table V (available at http://www.ijmr.org.in/articles/2017/145/5/images/IndianJMedRes_2017_145_5_611_215547_sm10.pdf)].

The NSG strongly advised that the DHR and other science ministries along with MoHFW should make efforts to pool resources for addressing priority research issues and also encourage national and international agencies to come together to invest strategically for greater and faster impact. The NSG has suggested that a number of research issues have the ability to be 'game changers' for the health systems, and for the health and nutrition of mothers and children, in general. These can be systematically identified and taken up in a mission mode by science ministries and donor agencies as per their own prioritization and investment policies. Recognizing the challenges of programme delivery in the context of weak infrastructure, national policymakers and programme planners have already identified north-eastern States and EAG States for the focus of several developmental schemes including health and nutrition (<http://nhm.gov.in/nhm/nrh.html>). To further accelerate the developmental process, region-specific research agenda should become natural corollary. Health is a State subject in India and implementation of research issues can be integrated with the programme monitoring and evaluation frameworks existing therein. The research agenda could be accomplished in an accelerated manner and effectively

with multistakeholder and multi-agency engagement through a broader convergent innovation coalition that will add to existing sectoral and cross-sectoral capacity for science, social sciences, economics, technology, innovation, strategy and policy to achieve better health and nutrition for mothers and their children in India.

Conclusion

It was concluded that the logical way forward for this exercise would be to take up these research priorities with different governmental and non-governmental agencies for investment. Various government and non-governmental funding agencies were requested to now re-align their investment with these priorities to achieve better health and nutrition for women and children of India effectively and efficiently. Further, bridging the gap between researchers and programme implementers at the grass root level would be essential along with decentralization of strategies to have State and possibly, district centric solutions for the betterment of health and nutrition scenario in India. In view of the predominance of delivery and implementation research identified as priority in all thematic areas, it was suggested to explore the possibility of supporting such research projects from the programme funds.

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ICMR head Dr. Soumya Swaminathan calls current state of affairs 'unsatisfactory', lays out new vision for health

Dr. S. Swaminathan, who completed MBBS from the Armed Forces Medical College in Pune, MD in paediatrics from the All India Institute of Medical Sciences, and was a fellow at the the Children's Hospital of Los Angeles, University of Southern California, USA, realised that few Indian institutions provide the opportunity to practice as well as conduct research. She chose to join the ICMR's TB institute in Chennai, while striking a deal with the children's hospital to work in the outpatient department in the evening. "Clinical researchers need to see patients. They cannot do research in isolation when you are not involved with patients and their problems," said Swaminathan, who hopes to encourage more such opportunities during her time at the ICMR.

Excerpts from the interview.

Q: A 2016 analysis of medical papers published between 2005 and 2014 revealed that even though only 25 (4.3 percent) medical institutions produced more than 100 papers a year, their contribution was 40.3 percent of the country's total research output. As many as 332 (57.3 percent) of medical colleges did not have a single publication during this period. In comparison, the annual research output of the Massachusetts General Hospital was 4,600 and the Mayo Clinic 3,700. Could you comment on the state of medical research in India?

This is an area of real concern for us because one of the mandates of the department of health research and the ICMR is to build health research capacity in the country. This analysis tells us that the current state of affairs is far from satisfactory. There are only a few medical colleges in the country that encourage and promote the culture of research, and we need to ensure that, in the coming years, many more medical colleges and medical college faculty get involved in research.

The first of five pillars of our new strategy, vision 2030, is strengthening biomedical and health research capacity in the country through a number of different schemes-- Providing opportunities, encouraging people, training and getting people excited for research. I think that the challenge is to get more medical students in their undergraduate and postgraduate courses to get interested in research, to get excited about research. Still, we do have some brilliant medical researchers, and about 10 of our top institutions like AIIMS, St John's, Christian Medical College in Vellore — are doing very high-quality work.

Q: How can research be encouraged and improved in the country?

I think it's the whole eco-system that we need to look at. It would be foolish to think that by training alone or by sensitisation alone one could get more people involved in research. I think about 10 years ago, the ICMR started a scheme called the Short Term Studentship (STS). This scheme is basically for medical students who can submit project proposals and they have a mentor either in their own institution or in another institution. During their holidays they take up a research project and get Rs 10,000. Over

the years we have seen a huge and increasing demand for the scheme. Currently we get 7,000-8,000 applications every year and we award 1,000 STS fellowships. We've also now started giving awards to the best papers that come out of this.

When I travel around the country and meet medical students, there is a huge demand, from dental students and physiotherapy students that we should extend the scheme to them because this really ignites that spark. Colleges also take pride, they tell we had eight successful STS this year or 10 last year and so on. So that's starting with medical students.

Then we have schemes for MD students. We offer financial support for an MD thesis, which is competitive, and screened by an expert committee. The top 50 MD theses receive a fellowship of about Rs 50, 000 to help write it up, publish it as a paper and things like that. I think we need to have more such schemes.

We also need to make the environment research friendly. If you're working in an institute or medical college which does not have facilities, it wouldn't make a difference even if you have ideas for research. Projects require basic lab support, a basic team you need to undertake it, research cannot be done by a single individual. Better the research, the more multidisciplinary the team. So you need lab scientists, field workers, statisticians and social scientists. In a regular medical college these things don't exist, even those few faculty who are interested they often get frustrated and give up.

For infrastructure, the department for health research has a scheme called the multidisciplinary research unit which provides funds to develop a high-quality lab in government medical colleges.

The other thing is that in many of the states that permit private-practice, this is a big disincentive for research because then the faculty member just wants to finish their work in medical college and then go and start their private practice. Research needs time, extra time beyond your working hours, you have to think a lot, work a lot, you have to go to the field. That is why we find...that if you look at these 40 institutions...the 25 institutions that contributed to 40 percent of research output would probably not allow private practice. Where you don't allow practice, faculty members are all the time thinking about their own field so they are much more likely to engage in research.

The next big issue is the need for mentorship and role models. If you have never met or interacted with

anybody who has done research, it is very unlikely that you would take it up. We are going to launch a new mentorship program that will connect young faculty with experienced researchers both within India and outside India who are willing to spend some time in guiding, mentoring and supporting young researchers.

There is another issue in India which I think we need to address that is the lack of collaborative spirit, a team spirit. Secondly, a kind of hierarchical approach which should not apply in our scientific institutions. Just because you are the director of the institution, does not mean you know everything about everything, you can only be an expert in one area and therefore you have to be open minded and encourage your younger scientists to look at other areas and maybe they become the world expert in that area. The seniors need to be able to accept that some of the juniors will excel, be brilliant and they need to be encouraged and not put down.

Also, to be really successful, you need to collaborate, you have to build teams. If you look at the top papers in journals like Science or Nature Today, sometimes you find there are a hundred co-authors. Today, scientific disciplines have developed so much that you tend to become a great expert in one area and therefore you need people in other areas. Modelling is a good example; you may be a physician or even a statistician but if you don't have those modelling skills, you need to collaborate with a mathematician who is also a good modeller to be able to develop a good model.

Q: Is research limited by the quality and timeliness of data in India?

It is an important issue because we have a large number of sources of data in our country and sometimes, some of those data sets are more available to people, than others. The NFHS (National Family Health Survey) is a good example of data that is made available to researchers both within and outside the country for secondary analysis and for further use, once the main report is out. That's a best practice kind of a thing but there are many others data sets which are not available and secondly, there are many different agencies collecting data on the same thing which are often not pooled.

One of the pillars of ICMR's new research strategy is on data depositaries and data warehouses. We would like to create a data warehouse of all health data from the country especially those that are collected using public funds. ICMR now has a network of labs that

collects data on vector-borne diseases like dengue. The NCDC (National Center for Disease Control) has their network of IDSP (Integrated Disease Surveillance Program) labs, while there are other agencies which are supporting projects, such as the CDC (US-based Center for Disease Control) which also runs labs. Now, unless we all pool our data we will not be able to see what is the national number for dengue for a particular year.

Similarly, for antimicrobial resistance all labs need to start reporting data into a common source or platform, that should be perfectly transparent and available not only to the scientist but to the public as well. We are moving in that direction, saying whatever research we fund through the ICMR that data ultimately should come back to us and put into a public database, publicly available. Publicly available database means that if anybody wants to utilize it there should be a system by which they can access the data. I think we have lots of data that is not fully utilized in India so I think there is a lot of scope here. I think the government has realised that so all of us are working to see how we can better utilise the data and make it available in a form in which others can use it.

There are a lot of things happening now. We've been working with the Registrar General of India (RGI) to utilize the SRS (Sample Registration Survey) data, and with the global burden of disease (GBD) group in Seattle—the IHME (International Health Matrix Evaluation Institute) to develop state level disease burden estimates. Every year the GBD brings out an update on the global burden of disease, so India figures there. But we know that for us, India as one dataset does not make much sense because we have huge variations between states. State health secretaries want to know what is happening in their own state so that they can actually modify the policies. We expect to, by the end of the year, release the first report on the state level disease burden estimation. Then every year we will keep refining it.

Q: As of 2015, 90 percent of India's cause-of-death data were incorrect/ incomplete or missing, thus reducing its utility for public-health. What could be done to change this and give a complete picture of India's disease burden?

It is a big lacuna, and we need to strengthen this in two ways. One, deaths that occur in hospitals need to be properly certified, which means doctors need training on medical death certification which we all don't get during our under-graduate post-graduate days. Even if a doctor is certifying the cause of death, they write cardiac arrest which does not help.

Second, we need to be able to get the cause of death of people who are dying at home. In rural areas, most deaths occur at home. We need another system whereby a local health functionary, whether it's the ANM or someone else, who can go and do a verbal autopsy. Then the doctor in that PHC (Primary Health Centre) needs to be able to certify the cause of death based on the details that are available. Unless we do this we will not improve cause of death data, and we will have to continue to depend on surveys and other indirect ways of finding out.

We need to move in the direction of all developed countries which have a good vital registration system where the cause of death is carefully reported. Then we don't need surveys and all.

Q: How could medical research help solve major health problems in India? For instance, India had 27 percent of the world's new TB cases in 2015, at 2.8 million. In 2015-16, India accounted for five percent of the under-five deaths (2,96,279 children) from diarrhoea and pneumonia globally, and malaria still affected 1.1 people in 2015.

The third pillar of our strategy is evidence to policy and the fourth pillar is implementation research. Both of these basically aim to fill the gaps in knowledge and to make sure that the evidence that is generated goes into policy making. We have a special focus on diseases that are to be eliminated. We are working with the ministry of health on Kala Azar, filariasis, measles, malaria, and tuberculosis. Our job here is to identify gaps in knowledge and try to develop tools to address those gaps. The gaps could be epidemiological in terms of not knowing the true burden of the disease. If you don't know the true burden of TB, or the true burden of leprosy in the country then it is difficult to gauge progress. So we can do a survey to find that out. Second could be a good diagnostic test that could be used in the field to detect. For example, for malaria, we have this rapid diagnostic test. For Kala Azar we have a rapid diagnostic test, for TB we still don't have something.

Similarly, for Kala Azar we had this long one-month treatment with injections then it became this one month-long treatment with oral drugs, today we have a single dose treatment that's come out of clinical trials at ICMR institutes and other institutes. For diabetes, we are looking at several clinical trials looking at yoga and other Ayurvedic medicine to slow down the progression from prediabetes to diabetes. We are supporting a number of mental health projects. This year we started a new program, to see how best we can implement the district level programme, because the National Mental health

programme was approved in parliament but the implementation of this policy requires a lot of innovation. This is health system research. We support everything from basic science to developing new technology, new vaccines, and all the way through health system research. This year we also began engaging with the private sector because, without them, we can't make much progress especially in the areas of drugs and new vaccine. We have already partnered with a number of companies to help them and to work together with them to either transfer technology developed by a scientist to industries so that kits can be marketed. Another way of collaboration is to evaluate something they have developed. We can field test their product, or do clinical trials. Third, we engage together on projects like we've done with Sun Pharma for malaria elimination in Mandla district of Madhya Pradesh. That's a public-private partnership where we bring the technical expertise, they bring in funding and the state government brings their workforce and supplies drugs and bed nets.

Q: India has seen progress in tackling visceral leishmaniasis (kala azar), a neglected tropical disease (NTD), eliminating yaws, a chronic skin disease that mostly affects poor children, and in treating lymphatic filariasis (elephantiasis). How could research help other disease control programs?

I think the learnings are that research plays an important role not only in developing program policies but also in evaluating them and modifying them from time to time. Whether it's which insecticide to use, unless you know whether the vector are developing resistance or not, when the insecticide should be sprayed, how much should be sprayed, and all that has to be found out through research studies. For a long time we use chloroquine (for mosquitos), It was research that found out that the entire northeast plasmodium falciparum (which causes malaria) had become resistant to chloroquine. We changed the national policy to an arsenate based combination treatment for the northeast. That monitoring has to continue to ensure that those drugs are still working. One is surveillance and feedback but the other is developing new strategies. For example, the government has started this National Program for Prevention and Control of Cancer, Diabetes, and Stroke. How is going to be implemented on the ground? What are the best ways that we can do cancer screening, what age group should we be screening, what technology should we use for breast cancer for cervical cancer?

One of the new initiatives is the health technology assessment program—we call it the medical

technology assessment board—which we have set up under the DHR to look at questions regarding universal health coverage. How will you define health coverage and what are the things that can be included under that because, for an individual patient his or her treatment is important. Even if it costs Rs 1 crore, that individual is going to say that you must provide me with the treatment, whether it's for a rare cancer or a rare genetic disease. But the public health program looks at different aspects, at effectiveness, cost effectiveness and also at equity considerations. You can use your Rs 10 crore to treat three people, or you may be able to treat a thousand people. Our job is to have an unbiased, transparent, and evidence-based approach so this board will really have to consist of people who are above all these vested interest, conflicts of interest etc. This was done in the U.K, where the National Institute for Health and Care Excellence and Health Intervention and Technology Assessment Program (HITAP) in Thailand, which are two successful programmes. We are collaborating with HITAP, which is similar to our programme, and an independent body whose recommendations are generally accepted by the government of Thailand.

Q: As we've seen India is seeing a shift in its burden of diseases. Deaths due to diabetes increased 50 percent in India between 2005 and 2015, and is now the seventh most common cause of death in the country, up from the 11th rank in 2005, according to data published by the Global Burden of Disease (GDB). Has ICMR conducted any research on why Indian's have a higher risk for diabetes and cardiovascular disease when compared to other populations?

Today, the non-communicable diseases, cardiovascular diseases and strokes are two top causes of death in India and the underlying risk factors for these are hypertension, diabetes, and poor air quality: both indoor and outdoor air pollution, and then come other risk factors such as smoking, obesity, nutritional dietary deficiency. For risk factors, in 1990 unsafe water and nutritional disorders were the top two risk factors, today hypertension and diabetes are the top two disorders in the country. Now we have to ask ourselves why this shift. There are many reasons. One is the changing demography. As you age on-communicable diseases

will increase. Second, with better immunisation and access to treatment, antibiotics, infectious diseases are coming down. Maternal and child deaths are coming down because of improved health services and this is likely to keep coming down further as we wipe out one infectious disease after another or we're able to control them. And the population is aging at

the same time. The third reason is a change in our lifestyles. We all know that in the last 25 years India has urbanised, people have become more prosperous, physical activity has gone down, diets have changed. We are no longer eating fresh home cooked food. We are eating a lot more of outside food, processed food with increased sugar, salt and fat. Another factor is environmental pollution. India has the double burden of indoor air pollution because of solid fuel use, which today luckily is declining rapidly because of the scale up of LPG. But also in cities, environmental pollution is becoming a huge hazard. These risk factors are leading to an increase in cardiovascular and cerebrovascular events.

Q: What is the way forward for India to tackle non-communicable diseases?

NCDs requires action at different levels, one is at the policy level, the government level, in terms of what can we do to reduce the risk factors. A lot of it has to do with individual and personal habits and behavioural changes and people need to realise and not wait. You see young people today in their 30's who are developing diabetes because of their lifestyle. They have motorised transport to get to the office, you get to the office, you tend to eat more than you need, you don't have regular exercise, and of course, smoking and alcohol are additional risk factors. This is where I think a huge massive awareness campaign needs to start so at least our

young people today become aware. The same thing happened in the West; they went through this period where they were over eating, then the young people

in the west realised these were risk factors and began to take care of their health. The government can look at policies on food labelling, salt content, sugar and on what is made freely available at subsidised rates. Today if we look at the Public Distribution System (PDS), and the National Food Security Act, we supply rice and wheat at very low rates to people, Rs 2 and Rs 3, and in some states, there are lentil dals and millets. But what is our diet deficient in? Our diet is deficient in micronutrients. The ICMR's National Institute of Nutrition has been doing a number of nutrition surveys over the years and the latest surveys show that over 80 percent of individuals in most of the states we've looked received less than 50 percent of the recommended dietary allowance of vitamins and minerals – important vitamins like vitamin A, D, iron, Zinc etc.

This could be one of the reasons why we are still having very high rates of malnutrition in the country. The latest NFHS-4 data show that stunting and underweight has declined from NFHS-3 but not to the extent which we had hoped. This shows there is still a huge issue of malnutrition despite all our schemes – the ICDS(Integrated Child Development Scheme), the Anganwadis, the mid-day meal, the PDS. That is why we have to think of the malnutrition problem not just in terms of the quantity of food but the quality of food. If don't get micronutrients in your diet you only get carbohydrates and some protein, you're not going to grow well. If you have worms and other infection you're not going to absorb the nutrients well so we need to look at nutrition in a holistic way not just how much food you're eating .much food you're eating.

Shreya Shah

ICMR News

Mandatory screening for zika among newborns yet to start in India

The article reports on the central government deliberating on including mandatory laboratory testing for microcephaly cases as part of the newborn birth screening program, even as India has already detected four zika cases. It highlights that after zika virus cases came to light, ICMR stated that it will

initiate testing of pregnant women and children under the Reproductive and Child Health Division of Ministry of Health and Family Welfare. The article quotes Dr. Soumya Swaminathan, Director General, ICMR stating that currently laboratory testing for microcephaly is operational in 55 medical colleges of India and that ICMR is deliberating with experts if they should include zika testing in new born screening program.

Livemint , August 8, 2017

ICMR launches new programme to improve treatment outcome

The article reports of ICMR initiating a new research program that seeks to improve stroke treatment outcomes and reduce the high mortality related to brain strokes in India. It quotes Jeyaraj Pandian, Head, Neurology department, Christian Medical College, Ludhiana stating that three projects have been approved by ICMR of which one of the projects focuses on stroke management using mobile telephony.

Deccan Herald, August 5, 2017

State begins new TB survey to replace the India-wide 1957 one

The article informs of the collaboration between Jammu and Kashmir Health department, Ministry of Health and Family Welfare, Government of India (GoI), ICMR and the International Union of Tuberculosis to conduct the first ever state wide tuberculosis prevalence survey. Highlighting the importance of the survey in recognizing ways to improve tuberculosis control, it states that the department has been using data from GoI survey conducted in 1957.

Kashmir Reader, August 7, 2017

Malaria experts at ICMR call for strengthening of PPP to make India malaria free

The article reports of malaria experts from ICMR emphasizing that the government must employ a collaborative approach to allocate resources and invest in research and development, transformative tools, and service delivery strategies to eliminate malaria. Mentioning that the private sector is not being sufficiently engaged to leverage its full potential, the article quotes Prof. Dr. S. Sabesan, Senior Consultant, Vector Control Research Centre, ICMR stating that Public Private Partnerships help to scale up healthcare by increasing coverage of effective health interventions and access to information.

Pharmabiz.com, August 5, 2017

Govt forming standards for special diets to help children with rare metabolic disorders

The article reports of an expert committee formulating guidelines for manufacturing, sale and distribution of special diets for children suffering from rare metabolic disorders. Stating that ICMR recently started a registry to find the exact burden of rare diseases in India, it reports that the exact prevalence of children suffering from inborn errors of metabolism (IEM) is unknown. The article states that the committee analyzed a long-list of special diets approved for use abroad in children suffering from metabolic disorders. Additionally, the project is a part of Food Safety and Standards Authority of India's (FSSAI) Diet4Life initiative, with experts from All India Institute of Medical Sciences, Delhi, ICMR, Indian Dietetic Association, Indian Academy of Pediatrics etc.

Hindustan Times, August 4, 2017

Gujarat floods: Govt sends team of doctors to assess situation of water-borne diseases

The article informs on the Union Health Ministry constituting a team of doctors from ICMR, National Institute of Virology (NIV), National Vector Borne Disease Control Program (NVBDCP) and Ram Manohar Lohia Hospital to assess the spread of water-borne diseases in flood-hit Gujarat.

Livemint, August 3, 2017

Chandragiri may soon get a biobank

The article informs of the Ministry of Health and Family Welfare establishing Model Rural Health Research Unit (MRHRU) in Chandragiri, Tirupati which would house a biobank to store stem cells, skin and organs. Dr. Sankar Reddy, Nodal officer for the unit, states that the Ministry has established MRHRU in Chandragiri. The article adds that the Unit aims to encourage medical fraternity to conduct research thereby reducing the workload of ICMR. The article further mentions that each MRHRU would be linked with one of the ICMR institution for mentoring and

the National Institute of Nutrition (NIN) shall be the mentor for Chandragiri unit.

The Hans India, August 15, 2017

Japanese Encephalitis: return of the old scourge?

The article highlights that the central government has asked ICMR to chalk out a plan to prevent Japanese encephalitis (JE) which has resulted in loss of lives in the Gorakhpur, Uttar Pradesh. It quotes Dr. Soumya Swaminathan, Director General, ICMR, mentioning the prevention efforts undertaken by the government which includes vaccination drives conducted in 2006 and 2010; followed by JE vaccine being introduced in the Universal Immunization Program in 2011.

Livemint, August 15, 2017

Swine flu now perennial threat

The H1N1 Swine Flu virus has mutated yet again, and now the disease isn't seasonal anymore, experts have confirmed. The new strain, called Michigan, was discovered in India earlier this year. The California strain of the disease has existed since 2009.

This year, so far, 15,121 people in the country and 928 in the National Capital have fallen prey to the disease, which has claimed 736 lives. In a telephonic interview with DNA, Dr. Soumya Swaminathan, Director General, Indian Council of Medical Research (ICMR), confirmed that the virus has mutated and will now affect people all round the year.

"I can confirm that the Swine Flu virus has mutated again and it is not a seasonal disease anymore. The biggest problem with the Swine Influenza virus is its tendency to mutate. This is the virus's own survival mechanism to escape the human immune system and surpass the antibodies created by a human body. So, medicines and treatments for it are not long-lasting and need to be updated almost every year," said Dr Swaminathan.

Keeping the recent mutations in mind, the government has now changed the Swine Flu drug category from Schedule 'X' to Schedule H1, which means that the drug will now be available at any

registered chemist shop and can be procured with a doctor's prescription. Delhi Health Minister Satyendra Jain and Dr Swaminathan have confirmed that the drug supply is sufficient to tackle any possible scenario. Earlier, the virus attacked mostly in winters. The World Health Organisation (WHO) has been modifying vaccines separately for Northern and Southern Hemisphere. But in India, due to its position along the equator and after the recent mutations, both types of vaccines are made available during different times.

"The internationally available vaccines contain three inactivated viral strains, the composition of which is reviewed every six months to ensure protection against the strains prevailing in each influenza season. The composition of vaccines is adjusted for the hemisphere in which it will be used. Thus, a vaccine available in one hemisphere may offer only partial protection against the infection in the other hemisphere," the WHO website states. Initially recorded in 2009 in Mexico, the disease was declared a pandemic by the WHO in 2010. India had already witnessed 42,592 cases and 3,000 deaths by the end of 3,000, as recorded. The death toll has gone up to 4,000 now.

"Most of those who succumbed were children, elderly, pregnant women or people with chronic lung disease. I strongly recommend that at least the vulnerable population, especially the health care workers, must take these vaccines to prevent the infection from spreading further," Dr Swaminathan said.

Cheena Kapoor, August 14, 2017

Concern on Childhood Obesity

As reported by Indian Council of Medical Research (ICMR), development of obesity is multi-factorial and eating of junk and processed food is one of them. Childhood obesity is a risk factor of developing heart diseases and diabetes in later life.

The results available from 15 States/UTs of an ongoing ICMR India Diabetes (ICMR-INDIAB) Study on the prevalence of diabetes indicate overall prevalence of Diabetes varying from 4% to 13%. According to the Report of National Commission on Macroeconomics and Health, there were 641 lakh cases of Cardiovascular Diseases (CVDs) in India in the year 2015. Ministry of Women and Child Development had constituted a Working Group on addressing consumption of foods High in Fat, Salt

and Sugar (HFSS) and promotion of healthy snacks in schools of India, which has given its report.

The Food Safety and Standards Authority of India (FSSAI) constituted an Expert Group on Salt, Sugar and Fat. The Expert Group prepared a draft report on consumption of these items and its health impacts among Indian population and recommendations on healthy dietary intake of these items. While preparing the above report, Expert Group has considered WHO guidelines on 'Sugar Intake for Adults and Children' regarding the adverse impact of high sugar in foods.

ICMR, National Institute of Nutrition (NIN) and other institutions carry out research and studies related to food and healthy diet. Apart from this, the consumers are made aware of food safety through consumer awareness programs launched jointly by the Department of Consumer Affairs and the Food Safety and Standards Authority of India (FSSAI) which also includes advertisements in different media, campaigns, educational booklets, information on FSSAI website and Mass awareness campaigns. The Minister of State (Health and Family Welfare), Smt Anupriya Patel stated this in a written reply in the Lok Sabha here today.

August 12, 2017

ICMR partners with IVI, invests Rs 3.20 crore for vaccine development in India

The article reports on an agreement signed between Indian Council of Medical Research (ICMR) and International Vaccine Institute (IVI) for collaborating on vaccine research and development. Highlighting that India will be committing \$5,00,000 (Rs 3.20 crore) annually for a stake in IVI, the article quotes Dr. Soumya Swaminathan, Director General, ICMR, stating that the government and IVI have not finalized the diseases for which vaccines will be developed. She adds that high-burden diseases, diseases with high morbidity and influenza are potential areas that can be targeted for vaccine development and the partnership with IVI is expected to support capacity building for clinical trials within India.

The Economic Times, August 22, 2017

2.5 lakh new cancer cases in UP, this year

One in three cancer cases in the country belongs to one of the BIMARU states, suggests Indian Council of Medical Research's National cancer registry programme (NCRP) data. In 2017, 15.17 lakh cancer cases have been recorded by various cancer registries in India against 14.5 lakh cancer cases in 2016. Of these, 5.75 lakh belonged to Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh.

Among the four BIMARU states, UP saw a maximum of 2.5 lakh cancer cases, which is maximum in the country. Maharashtra accounts for second highest cancer burden in the country with 1.38 lakh cases. The ICMR data was shared by Union minister of state for health and family welfare, Anupriya Patel earlier this week. ICMR has already projected a 25% increase in the country's cancer burden by 2020.

Experts feel the figures may be an underestimation of the real scenario. "There is need for more cancer-based registries to study the pattern and trend which is essential to formulate specific preventive strategies. After all, cancer is one the top 10 killers in the world. Data shows one in eight people in India die of cancer," said Prof Shaleen Kumar, head of radiotherapy department, Sanjay Gandhi Post Graduate Institute of Medical Sciences.

Drawing attention towards one such trend, researcher global health and bioethics, Dr Anant Bhan said, "Though it is an estimate, it is an eye-opener. A better database will help policy makers and health experts formulate the much needed localised prevention strategies. This is crucial in wake of diverse regional variations in India. For example, cancer of food-pipe or stomach are more common in north eastern states, while there is higher incidence of oral cavity and lung cancer in northern India."

Director of the National Centre for Disease Informatics and Research—the ICMR body running NCRP since 1982—Dr Prashant Mathur said, "We are in the process of starting many new cancer registries. We urge states to make cancer a notifiable disease to improve data gathering," he told TOI.

Talking about UP, health experts blame it on use of paan masala and tobacco. Cancer surgeon from UP working in Tata Memorial Hospital, Mumbai, Dr Pankaj Chaturvedi has called up on UP government to ban paan masala in public interest. "Tobacco's role in cancer is well understood. But Pan Masala which

also contains cancer causing agents is not taken as seriously as it should be. In UP, there are localized patterns of tobacco consumption of which pan masala is a key ingredient," he said.

Stating that National Health Policy of India has promised to bring down cancer burden to one-third, anti-tobacco activist Bobby Ramakant said, "Data shows the magnitude of the challenge before health authorities. I hope the figures compel them to act strongly against tobacco, paan masala and other cancer causing agents."

The Times of India, August 10, 2017

ICMR and George Institute to focus on using data and research to shape policy and programmes for women's health

The Indian Council of Medical Research (ICMR) and the George Institute for Global Health have identified challenges in the areas of data collection and analysis around various aspects of women's health.

Both the Council and the Institute have identified the gaps in gender-based research. They have called for the need for focus on the burden of non-communicable diseases among women, gendered approach to health data and research, building capacity to undertake women's health research and constantly involve community in data collection.

With the aim of initiating dialogue, ICMR along with George Institute for Global Health organised a roundtable on The Future of Women's Health: Using Data and Research to shape women's Health Policy and Programme. This is the second in a series of discussions on women's health.

Some of the challenges identified were consideration of cost, asking the right questions, establishing mechanisms to collect the right data, finding the right tools to analyse the data, taking the time to analyse and report the data, and strengthening the evidence base for changing policy and practice around women's health.

New data is emerging that points to a major discrimination in the area of women's health. While ischemic heart disease, stroke, chronic respiratory diseases and diabetes claim the largest number of lives of women in India, the narrative around the health agenda for women remains limited to issues of

sexual and reproductive health. NCDs were responsible for 60% of all deaths amongst women in 2013, up from 38% in 1990. Their contribution is about 40% in the 15-49 year age group, and >75% after the age of 50. Back and neck pain, depressive disorders and respiratory diseases cause major disabilities among women in India.

According to Dr. Vivekanand Jha, executive director, The George Institute for Global Health, "women's health research is still very much in its infancy. Women are still excluded from clinical research, and there is no appreciation of sex differences. Even when data is collected on both men and women, sex disaggregated analysis is never done, so women's health conditions are not studied in a nuanced manner."

"Greater focus on women's health is the need of the hour. There are gender differences in society, economics, and at the work place, besides of course in the family, which contribute to distinct health needs and varying health system uses," he added.

The round table which brought together government representatives, researchers, academics, funding agencies and institutional bodies to reflect and deliberate on the key issues pertaining to women's health highlighted at determining how best to improve the health of women and adolescent girls, and at identifying strategies to reshape their health agenda through a life course approach including prevention and management of non-communicable diseases and injuries.

Pharmabiz.com, August 16, 2017

House panel blow to GM mustard plan

"The committee fails to understand as to how the Department of Health Research gave its approval for the commercialization of GM crops in India even without having the matter studied thoroughly on its part...it is surprising that there has been no in house scientific study carried out till date to study impact of GM crops on human health," the panel said.

In a blow to the Centre's plans to begin commercial cultivation of genetically modified (GM) Mustard crop in the country, the parliamentary panel on environment, science and technology has recommended a thorough examination of the crop's impact on environment and the health of humans and animals. Noting absence of credible studies on the

crop's human and animal impacts, the panel asked the Ministry of Environment, Forest and Climate Change (MoEF&CC) to not introduce the crop without evaluating its biosafety issues and long-term impacts in an independent and transparent process.

The panel said that the consultation should happen "with concerned government agencies, experts, environmentalists, civil society and other stakeholders so that the nation is very clear about all its probable impacts before taking a call in that matter."

Earlier in May, the Genetic Engineering Appraisal Committee (GEAC), the country's apex regulator of genetically modified organisms and foods, recommended commercial cultivation of GM Mustard crop to MoEF&CC. The government is yet to give a final stamp of approval for cultivation. The GEAC recommended the crop's commercialisation even as a matter on the issue was pending before the Supreme Court, the panel noted.

In its report on the GM Mustard crop and its impact on environment, the panel expressed serious reservations about four broad issues. They pertained to the existing mechanism to regulate GM crops and the crop's impact on environment, humans and animals. During its hearings, the Secretary, Department of Health, informed the panel that the Indian Council for Medical Research (ICMR) had not conducted any study till date on the crop's impact on humans. "Scientists in ICMR feel that doing this kind of a test on human beings right now does not seem to be practical as it is very difficult to feed one person GM alone to test its impact." The panel expressed surprise on the absence of scientific studies on the crop's impact on human health. "The committee fails to understand as to how the Department of Health Research gave its approval for the commercialization of GM crops in India even without having the matter studied thoroughly on its part...it is surprising that there has been no in house scientific study carried out till date to study impact of GM crops on human health," the panel said.

The House panel's report on GM Mustard comes three months after its chairperson Renuka Chowdhury, Congress MP in Rajya Sabha, wrote the Prime Minister seeking to defer the final call on commercial cultivation of GM Mustard till the panel completes its hearings.

CROP TESTS

Panel asks Ministry of Environment not introduce the GM crop before examining its effect on human, animals and environment

Scientists feel test on humans difficult as it is not practical to feed one person GM alone.

DNA India, August 28, 2017

'Combine research with academics and teaching'

On the occasion of the 8th convocation of Jipmer on Tuesday, Soumya Swaminathan, Director General of the Indian Council of Medical Research, emphasised that research should be combined with academics and teaching.

"In India, research has been divorced from academics and teaching, where research institutions are supposed to do only research and then medical colleges should focus on teaching and patient care and very few actually do any kind of high quality research. If we look at the West, research is combined with academics and teaching," said Dr. Swaminathan, who was the chief guest. She stated that collating health data was a huge challenge in India. "As we graduate from MBBS or MD, we have so much in mind that we do not think about these things. But, when you are in a community health centre or district hospital and wondering what diagnostic tool you should be having and what are the common diseases there, we do not have the data," she said.

She stressed that health data was particularly important for policy makers. "Our vital registration system is not perfect. Most births are not registered and a large proportion of deaths are not registered and notified. Even if they are, the cause of death is not recorded well. We are discussing with the Ministry of Statistics to improve and collect information on the medical cause of death. This will help in the planning of health policy," she said.

The ICMR Director General vouched for a decentralised health care system. "Health care systems should be planned at the State and district level based on the disease burden. No longer will a centralised planning work as far as healthcare delivery is concerned. We cannot have same health care systems for Chhattisgarh and Kerala. Unless you have the population level data, it is very difficult to

know the epidemiology of the disease and the impact of different policies on population health," she said.

The Hindu, *September 6, 2017*

TB pills before, during or after food? Researchers clear the air

In a study that could change the intake schedule of tuberculosis drugs, a group of researchers have found that food reduces the effectiveness of most medicines prescribed as the first line of treatment for the infection. A team from the National Institute for Research in Tuberculosis (NIRT) — after examining 25 TB patients in Chennai who had food just before they took their medication — found that the anti-TB drug concentrations had significantly lowered and there was delay in their absorption. They studied the concentrations of three key first-line drugs: rifampicin, isoniazid and pyrazinamide.

Dr Soumya Swaminathan, director-general of Indian Council of Medical Research who was one of the co-authors, said although most doctors were aware of the clinical impact of food on rifampicin, guidelines on when to take the other drugs were hazy. "Our study shows that at least two other first-line drugs need to be taken on fasting," she said, adding their findings are significant as the dosage of first-line drugs is low. "And if food reduces it even further, it is a cause of concern," she said.

However, not everyone can tolerate having these drugs on an empty stomach. "In such cases, leave a gap of at least three hours after food," she said.

The research, which was published in the Indian Journal of Medical Research, involved studying patients who had medicines after a breakfast of four idlies with coconut chutney and sambar and a cup of coffee. The same group was examined after an overnight fast of 12 hours, followed by drug administration and breakfast after two hours of drug administration.

Drug administration with food caused the plasma concentration (time taken for any drug to start taking effect after being absorbed in blood) to decrease by 50%, 45% and 34% for rifampicin, isoniazid and pyrazinamide, respectively. Researchers say food intake exerts a complex influence on the bioavailability of drugs. "It may interfere not only with tablet disintegration, drug dissolution and drug

transit through the gastrointestinal tract but may also affect the metabolic transformation of drugs in the gastrointestinal wall and liver," said Dr Geetha Ramachandran from NIRT's department of biochemistry and clinical pharmacology. She said

there is no clear guidance on whether or not to take anti-TB medications with food. "It is believed that drugs are not well tolerated on an empty stomach and many patients prefer to have food before taking their medicines," she said. In the Revised National Tuberculosis Control Programme, all drugs are administered together as directly observed treatment (DOT) in the intensive phase.

The study recommended doctors to explain to patients the beneficial effects of taking anti-TB drugs in a fasting state and advised to do so. "There is also need for more research on optimization of dosing to maximize efficacy and safety of currently used drugs," said Dr Swaminathan.

The Times of India, *September 4, 2017*

Dietary chart to get ICMR relook for possible changes

Scientists and nutritionists from across the country will analyse data from several Indian studies to check if the recommended carbohydrate intake in the dietary guidelines provided by the Hyderabad-based National Institute of Nutrition needs to be lowered, Indian Council of Medical Research (ICMR) director general Soumya Swaminathan said. The council will also recommend policy changes that will make healthy foods more affordable, she said.

Last week, a study published in the medical journal Lancet, overturned the conventional medical wisdom on dietary intake. The study showed that people who cut back on fats had shorter lives than those who enjoyed oil, butter, cheese and meat. It also suggested that carbs created complication. "We have to take the Prospective Urban Rural Epidemiology (PURE) study seriously because two teams from north and south India surveyed people here too," said Swaminathan.

Most Indians have a carbohydrate-rich diet as they cannot afford proteins or fat. "Healthy diet is expensive and still out of reach for many," said Swaminathan, adding food subsidies provide free rice, not fruit, vegetable or dal. According to the ICMR manual, a balanced diet has 50%-60% of

calories from carbohydrates, and 20%-30% from fat. "We too recommended some amount of fat, as most cardiac arrests and strokes aren't triggered by cholesterol, but by triglycerides. We should see if we

can cut down carbs and increase protein," said former National Institute of Nutrition director B Sesikeran. Triglycerides come from "bad" carbs like high sugar and processed food and lack of legumes, fruit and vegetables.

The Times of India, *September 4, 2017*

Nutrition, still a tough challenge for India

The nourishment of adolescents continues to be a challenge in India, says a study by the National Institute of Nutrition. The institute studied both the genders' eating pattern and it was found that there was a decline in millets and animal protein. NIN said many adolescents were going for status foods and suffer undernourishment. Dr B. Sesikeran, an ex-director of NIN, said, "Proteins from different sources complement each other. In India, people are confused about dietary protein and assume that it is meant only for body builders. Protein is a fundamental nutrient. Vegetarian diets have adequate protein if we include pulses and legumes. However, in the case of cereals and pulses, protein digestibility and bioavailability is around 65 per cent only." NIN found that in the age-group of 13 to 17, there was a deficit of cereals, pulses and legumes.

Nutritionist Farhad Fathima explained, "Balanced nutrition is important as we often find young girls are too heavy on carbs and less on fibre and proteins." Experts say that adolescent health has not been given priority. Most of them are eating too much of one type of food. The balance of cereals, pulses, proteins, carbs and fiber is important for the young.

Deccan Chronicle, *September 12, 2017*

Centre planning to start centres of excellence in medical research

The central government is planning to start at least 20 centres of excellence in medical research - like

Harvard Medical School and Johns Hopkins -- in best performing colleges across the country to encourage students in medical research, Indian Council of Medical Research director general Soumya Swaminathan said here on Wednesday. Soumya was speaking at the 29th convocation of the Tamil Nadu MGR Medical University. She said though Tamil Nadu has achieved several milestones in healthcare by bringing down maternal and infant mortality rates, its research output continues to be poor despite rich clinical material and resources. "Countries like

Sri Lanka are better in terms of both quality and quantity of research per million population," she said. On Wednesday, 19,183 UG and PG students received their degrees in medicine, dentistry, AYUSH and allied health science courses at the convocation. Around 2,925 students received their degrees in person. Tamil Nadu Governor and university chancellor C Vidyasagar Rao presented medals to 166 students for their exceptional performance. PhD degrees were conferred on 59 students.

In her 20 minute-convocation address, Dr Swaminathan told students anecdotes from her own experience. "In the 90s, when I went to Javadu Hills for a TB programme. There were no government programmes there then. People wanted to know why we were developing a programme for TB when they did not have a government doctor who could offer primary care. People said they had to walk up to 20km if they were unwell. Unless researchers ask the community what they want we would be able to do justice," she said stressing on the need to improve public health research. Institutions like the Tamil Nadu Dr MGR Medical University should start departments for research like JIPMER, Puduchery, which now has a new dean for medical research, she said.

"While we will expand this, universities should also offer studentships," she said. She encouraged nursing and other paramedical students to develop strong research protocols.

The Times of India, *September 6, 2017*



Mumbai team discovers how embryos implant in the womb

The insight can be used for improving the success rate of in vitro fertilisation (IVF) and in developing contraceptives. Researchers at the National Institute for Research in Reproductive Health (NIRRH) in Mumbai have finally shed light on one of the most important steps in pregnancy — the ability of the embryo to implant itself in the womb. Although much is known about the early steps of establishment of pregnancy, very little is known about the communication between the implanting embryo and mother's womb. The researchers have found a cross-talk between the embryo and the inner lining of the uterus (endometrium) and discovered a chain of chemical events that facilitate the implantation of the embryo in the womb.

The understanding of this initial step has several potential implications such as improving the success rate of in vitro fertilisation (IVF), which hovers around 30% and developing contraceptives which work by preventing the implantation of the embryo. In all probability, the insight into the implanting mechanism might help in better understanding of conditions such as pre-eclampsia (gestational hypertension). The results of the study were published in the journal *Endocrinology*. In vitro studies Even in normal situations, there is about 40% wastage of embryos as they fail to implant, leading to unsuccessful pregnancy. That is because a delicate and intricate balance exists between the embryo which is able to implant itself and the endometrium that receives it. At present very little of this process is understood. Using cell lines of trophoblast (the outer layer of the dividing bunch of cells of blastocyst) and endometrium (the inner lining of the uterus) samples from women who have undergone hysterectomy the researchers recreated the system in a lab dish. Chemicals were used to make the endometrium thicker (decidua) to mimic the lining of the uterus which is ready to allow the embryo to implant itself.

A particular protein (HOXA10) which is responsible for better invasion and implantation of the embryo in the endometrium is present at elevated levels in a receptive endometrium. The team led by Dr. Deepak Modi at the Molecular and Cellular Biology Laboratory at NIRRH found the level of this protein drops suddenly at the time of implantation. This drop is localised to the place where the embryo is about to implant itself.

Chain of events

The sudden drop in the HOXA10 protein causes a chain of events starting with a spike in certain class of cytokine leading to a trigger in the implantation pathway (STAT3) of the embryo. As a result, certain enzymes in the embryo digest the extracellular matrix of the decidua (thickened lining of the uterus) and make it loose enough for the outer layer of the embryo (trophoblast) to invade and implant itself in the uterus. “We depleted the HOXA10 protein in one set of decidual cells while we kept it at normal level in another set of cells. We found increased invasion of trophoblasts and therefore better implantation where cells with reduced HOXA10 level were used,” says Dr. Modi. “We could also show that the trophoblast cells which have more invasion have increased activity of the enzymes that digest the extracellular matrix proteins of the decidua.” “Previously it was thought that higher HOXA10 expression was better for implantation. But our study, for the first time, showed that at the site of implantation the HOXA10 expression is lower,” says Dr. Satish Kumar Gupta from the National Institute of Immunology, New Delhi and one of the authors of the paper. It took the team eight years to complete the study. The biggest challenge was to test and prove the sequence of events observed in the lab happen in the womb. “This was a big technical challenge as getting human tissue of women in early stages of pregnancy is impossible. So we took tissues from monkeys which are very close to humans to validate the lab findings,” says Dr. Modi. In baboons, lower levels of HOXA10 protein were found at the site of implantation as compared with other sites of the decidua. “This helped confirm that reduced HOXA10 protein was associated with the enhanced invasion and implantation of the embryo in the decidua,” says Geeta Godbole from the Molecular and Cellular Biology Laboratory at NIRRH and the first author of the paper.

The Hindu, September 16, 2017

Most Indians undernourished: Study

The article reports of National Institute of Nutrition (NIN), Hyderabad, compiling a database on diet and nutritional status of urban population based on a research study led by Dr. Avula Laxmaiah, Head, Division of Community Studies. Stating that over 1.72 lakh subjects from 52,577 households from 16 Indian states were covered in the study, the article reported that the study covers prevalence of stunting, hypertension, tobacco smoking and diabetes. The study highlighted that a majority of people in the country consume green leafy vegetables, milk and milk products, sugar and jaggery and other nutritious foods in quantities lower than the recommended daily allowance.

The Times of India | September 26, 2017

Nutrient packets may replace food: Maneka Gandhi

The article reports of Maneka Gandhi, Minister, Women and Child Development, calling for states to provide nutrient packages directly to beneficiaries instead of providing food through anganwadis. Dr. Soumya Swaminathan, Director General, ICMR, states that the nutrient packages will be useful in feeding children with acute malnutrition. She adds that the packets must be visualized as therapeutic food and must not replace normal diet.

Women and Child Development Minister Maneka Gandhi Tuesday said the ministry is planning a complete overhaul of its supplementary nutrition programme wherein states should provide nutrient packages directly to beneficiaries instead of providing food through anganwadis. Referring to the anganwadi-run supplementary nutrition scheme under the ministry's Integrated Child Development Services Programme (ICDS), Maneka told a conference of officials from 130 districts with the highest rates of malnutrition, "Supplementary nutrition is in the form of take-home rations or hot-cooked meals. I want to bring about a complete change, an out-of-box change."

"What we have till now is food which is not even calorie-dense. Secondly, our delivery system has always been dependent on anganwadis. Anganwadi stopped being an effective delivery system 20 years ago," she said. Maneka said that under the new policy, instead of food, the focus would be on nutrient packets that will provide 1,000 calories to

pregnant and lactating mothers and 600 calories to children. "What we came up with is a change in policy which is, we stop thinking of this as giving food. Khana nahi dena — we give nutrition," she said, adding that the packets would have a dry mixture of peanuts, millets and micro-nutrients which can be consumed with milk, lassi, juice, or water.

Experts, however, state that ready-to-use therapeutic foods cannot always be a substitute for hot-cooked meals. "There is nothing to beat hot-cooked fresh food but one has to ensure quality and quantity. The packages are useful in feeding children with acute malnutrition. It should be seen as a therapeutic food and should not replace your normal diet," said Soumya Swaminathan, Director General of Indian Council for Medical Research. Maneka said the delivery pattern too would be changed entirely so as to stop leakage. She pointed out that the Union government is very keen on direct benefit transfer (DBT), where cash is transferred directly to the beneficiary's account instead of food. Maneka, however, said she is in favour of packed nutrients since DBT would mean a very small amount reaching the beneficiary who doesn't have the advantage of buying food at government's wholesale prices.

The minister suggested that nutrient packages should be delivered through post offices. "Thirty packages can be delivered through the post office to every family that has a baby and a pregnant mother. Since it is not vegetable or rice, it cannot be misused or sold in the market," she said. Ministry officials, however, said that as recommended by a NITI Aayog report, they have drawn up a proposal to substitute take-home rations with cash. "Once the proposal is approved, we will start a pilot project in 100 districts and later extend it to the others," said an official.

Indian Express, September 20, 2017

What is making urban young India unhealthy?

Glued to the chair for long hours in office, eating unhealthy food, drinking carbonated beverages and getting little time for exercise! That's the picture of young employees in urban India presented by a report by the National Institute of Nutrition (NIN).

The report by NIN, which functions under the Indian Council of Medical Research (ICMR), was prepared after a study of 171,928 individuals across 16 states.

Two-thirds of urban men (63%) work for more than eight hours a day and three-fourths of women (72%) for little less than eight hours a day, the study found. And, most of them work seated at a desk. “On an average, more than a fourth of urban men (28%) were doing physical exercise, mainly ‘walking’ (21%), ‘yoga’ (4%) and ‘floor exercise’ (2%). Similarly, 15% of women were participating in physical exercise which included walking (11%) and yoga (3%),” the report said.

“Most of the urban women surveyed were found to be engaged in household activities like cooking, gardening, maintenance of the house, etc. More than half of the men (57%) and women (53%) were habituated to drinking carbonated water beverages (CWB) and it was found to be more in the state of West Bengal and low in the state of Maharashtra,” it said. The report titled “Diet and nutritional status of urban population in India and prevalence of obesity, hypertension, diabetes and hyperlipidemia in urban men and women,” also found that only 23% of men and 12% of women managed to exercise daily. Among adult men and women, hypertension was found to be the most prevalent, followed by diabetes mellitus. “These data are not surprising; inactivity and unhealthy diets are already seen from 10-12 years age. This is the age when in school, more emphasis should be given to sports, physical activity, increased intake of fruits and vegetables and strict maintenance of weight,” said Anoop Misra, chairman, Fortis-C-DOC Centre for Diabetes,

Metabolic Diseases and Endocrinology and chairman, National Diabetes, Obesity and Cholesterol Foundation. Men in urban areas suffer more than women from hypertension and its prevalence is highest in Kerala. Nearly 16% men smoked and 30%

consumed alcohol. In Kerala, the prevalence of hypertension was highest (39%) while in Bihar, it was the lowest (22%). Almost one-third to half of the men and women were seen suffering from weight and obesity-related problems and one in every three urban men and women were observed to be suffering from hypertension. One in every four men and women were suffering from diabetes. About one in every three men and women were also suffering from hyperlipidemia (abnormally elevated levels of any or all lipids or lipoproteins in the blood). About one in every five men was a smoker, while one in every three men was seen to be consuming alcohol regularly.

“There is a need to sensitize the community on the causes and consequences of obesity, hypertension, diabetes, etc., through health and nutrition education using Information Education and Communication (IEC) activities, and behaviour change communication methods. People need to be educated on the benefits of healthy lifestyles and healthy dietary habits as it enables the prevention of non-communicable diseases and promotion of overall health,” the report said.

Livemint, October 3, 2017

SEMINARS/ SYMPOSIA/ CONFERENCES/ WORKSHOPS ETC

S. No.	Title	Date/ Duration/ Place	Organisers
1.	3rd National Symposium on Nutraceuticals: Convergence of Pharmaceutical and Food Industry.	2017-07-06 One Day New Delhi	Joint Director Assocham, New Delhi
2.	Grant of Financial Assistance for Organizing Workshop & Round Table Consultation .	2017-07-8 2 Days Jodhpur (Raj.)	AIIMS, Jodhpur

3.	International Conference on Materials Research and Technology (ICMR-2017).	2017-07-10 2 Day Ballabgarh(Faridabad)	Principal Cum Convener, Aggarwal College, Faridabad
4.	Conference on Recent Developments In The Applications of Transition Metal Complexes In Bioinorganic and Medicinal Chemistry.	2017-07-14 2 Days Vinudhunagor (TN)	V.H.N. Senthikumara Nadar College, Vinudhunagor
5.	Seminar on Awareness on Pathogen Carriage, Prevention and Personal Health Promotion Among Rural Adolescent Learners of Higher Education.	2017-07-14 One Day Mannargudi (Tiruvarur) TN.	M.R. Government Arts College, Tiruvarur
6.	Grant of Financial Assistance for Organizing Amrita Annual Pathology Update, 2017 on Pathology of Female Genital Tract .	2017-07-15 2 Days Kochi (Kerala)	Amrita Institute of Medical Sciences, Kochi
7.	International Symposium: Theranostics In Health And Disease	2017-07-20 3 Days Vellore (TN).	School of Biosciences & Technology, VIT University, Vellore
8.	National Conference on Clinical Virology – A Distinct Entity At The Frontiers of Health Care	2017-07-21 2 Days Vellore (TN)	Christian Medical College, Vellore
9.	Confluence 2017...Where Ideas Meet.	2017-07-27 3 Day Mumbai	Seth G.S. Medical College & KEM Hospital, Mumbai
10.	24th Annual Meeting of Indian Eye Research Group Auro-India Chapter.	2017-07-29 2 Days Madurai-625020	Arvind Medical Research Foundation, Madurai
11.	3 rd Workshop on Tobacco Control – 2017	2017-08-01 4 Days Puducherry	JIPMER International School of Public Health, Puducherry
12.	International Conference on Advances In Nutrition and Health Communication	2017-08-03 2 Days Coimbatore	Avinashilingam Institute for Home Science & Higher Education For Women, Coimbatore
13.	Workshop on Medha-Medical Device Hackathon	2017-08-04 3 Days Sawangi (M), Wardha (Ms).	J. N. Medical College, Wardha
14.	National Workshop on Zebra Fish In Biomedical Research and Drug Development	2017-08-04 2 Days Puducherry	JIPMER, Puducherry
15.	National Symposium on Head and Neck Cancer	2017-08-05 One Day New Delhi	UCMS & GTB Hospital, New Delhi
16.	1 st Annual CME on Paediatric Transfusion Medicine Practices on Introduction to Paediatric Transfusion Medicine	2017-08-06 One Day Noida, U.P	Hospital & Pg Teaching Instt. (Super Speciality Paediatric Hospital & Post Graduate Teaching Institute), Noida
17.	6 th ramalingaswami Oration and Hepatopathology Update, 2017	2017-08-08 One Day New Delhi	Institute of Liver & Biliary Sciences, New Delhi
18.	Workshop on Routine Procedures, Handling and Care of Small Experimental Animals	2017-08-11 2 Days Coimbatore	Karpagam University, Coimbatore

19.	5 th Workshop on Leadership and Management Program(Lamp) and Research Methodology In Health Research	2017-08-17 10 Days New Delhi	The INCLEN Trust International, New Delhi
20.	Workshop on In-Vitro Cell Lines Study For Drug Discovery and Development	18-19 August,2017 at Raipur (C.G.)	Columbia Institute of Pharmacy, Raipur
21.	CME on Critical Care	17-08-18 2 Days Delhi Cantt	College of Nursing Army Hospital (R&R), Delhi
22.	International Conference on Nano-Technology In Energy, Nano-Bio Interface & Sustainable Environment (Intense-2017)	2017-08-19 3 Days Jaipur (Raj.)	Amity Institute of Biotechnology, Amity University, Jaipur
23.	International Conference on Environment, Genes, Health and Diseases (EGHD 2017)	2017-08-22 3 Days Coimbatore.	Bharathiar University, Coimbatore.
24.	Conference on Additive Manufacturing (3d Printing) In Bio Medical Applications	2017-08-23 2 Days (Tiruchengode Namakkal) TN.	K.S. Rangasamy College of Technology, Tiruchengode Namakkal
25.	Workshop on Cancer Awareness Amongst The Tribal Communities of Manipur, North East India	2017-08-24 2 Days Ukhrul (Manipur).	Ardent Foundation (Dsir-Siro), Ukhrul .
26.	Workshop on Biostatistics and Research Methodology in Coordination With ICMR - NICPR, Haemodynamic Monitoring, Airway Management	1 st Sept. 2017 At Jodhpur (Raj.)	AIIMS, Jodhpur
27.	Indian Institute of Technology Guwahati	1-3 Sept. 2017 At Goa	Indian Institute of Technology , Guwahati
28.	12 th Joint Annual Conference of Indian Society For Malaria and Other Communicable Diseases (ISMOCD) & Indian Association of Epidemiologists (IAE)	1-3 Sept. 2017 at Pune	Armed Forces Medical College (AFMC), Pune
29.	Continuing Professional Development Program on Oral Pathaologia-Basics to Expertise	2 nd Sept. 2017 at Manipal (Kar.).	Manipal University
30.	Conference Sangam 2017 Shankara Nethralaya Glaucoma Meet	2-3 Sept. 2017 at Chennai	Medical Research Foundation, Chennai
31.	CME on Dermatophytoses -Challenges Ahead	5 th Sept. 2017 at Tiruchirapalli (TN)	Chennai Medical College Hospital & Research Centre, Tiruchirapalli
32.	1 st Annual CME on Paediatric Transfusion Medicine Practices on Introduction to Paediatric Transfusion Medicine	6 th august, 2017 at Noida (U.P.).	Hospital & Pg Teaching Instt, (Super Speciality Paediatric Hospital & Post Graduate Teaching Institute), Noida, UP

33.	13 th Postgraduate Course on Endocrine Surgery & International Workshop In Aesthetic Thyroid Surgery	6-9 Sept. 2017 at Lucknow (UP).	Sanjay Gandhi Postgraduate Institute of Medical Sciences
34.	Seminar on Technological Advances In Smart Healthcare Monitoring System using IOT	7-8 Sept. 2017 at Coimbatore	Avinashilingam Institute for Home Science & Higher Education For Women, Coimbatore
35.	2 nd Annual Symposium on Cell and Gene Therapy	7-8 Sept. 2017 at Vellore	Centre For Stem Cell Research Christian Medical College Campus, Vellore, Vellore
36.	Seminar on Technological Advances In Smart Healthcare Monitoring System Using IOT	7-8 Sept. 2017 at Coimbatore	Avinashilingam Institute For Home, Coimbatore
37.	Workshop on Training Health Professional to Think, Design and Develop Research Protocol	7-9 Sept. 2017 at Indore (MP.).	Choithram College of Nursing, Indore
38.	Workshop on Sensitizing and Awareness generation of Public Health Students and Professionals For Empowering Street Food Vendors and their Clientele Against Tobacco Use using Health Education	8 th Sept.2017 at Chandigarh.	PGIMER, Chandigarh
39.	Seminar on Bigdata Analytics with Apache Spark-(NSBAAS-2017)	8 th Sept. 2017 at Tiruchengode (Namakkal) TN.	K.S.R. College of Arts & Science for Women, Tiruchengode
40.	Symposium and Workshop on Medical Ethic	9 th Sept. 2017 at Bangalore	Ramaiah Medical College, Bangalore
41.	North-East Healthcare Summit-2017	8-9 Sept. 2017 at Gangtok (Sikkim).	Public Health Foundation of India Public Health Specialist,Gangtok
42.	Gynaecon 2017 : Workshop & CME on Evidence Based Practices In Obstetrics & Gynaecology and Endoscopy Surgery In Gynaecology	9-10 Sept. 2017 at Pune	A.F.M.C, Pune
43.	Conference on Emerging Perspective In Nursing	11-12 Sept. 2017 at Srinagar (J&K).	Sher-I-Kashmir Institute of Medical Sciences, Srinagar
44.	International Conference on Neonatology (Mgmneopaicon)	12-17 Sept. 2017 at Navi Mumbai	MGM Institute of Health Sciences, Mumbai
45.	Seminar on Human Factors and Ergonomics In Healthcare and Patient Safety	14 th Sept. 2017 at Rasipuram (Namakkal) TN	Muthayammal Engineering College, Namakkal
46.	Seminar on The Future of Applied Biomechanics in Human Body	14 th Sept. 2017 at Pollachi (TN).	P.A. College of Engineering & Technology, Pollachi
47.	Workshop on Medical Image Processing Techniques In Clinical Research and Health Care	14-16 Sept. 2017 at Chennai	KCG College of Technology, Chennai
48.	Workshop on Clinical Research Methods	14-16 Sept. 2017 at Kattankulathur(Kanchipuram), (TN)	Medical College Hospital & Research Centre, SRM University, Kanchipuram
49.	Seminar on Smart Wireless Sensor Networks For Healthcare Monitoring Using IOT	14-15 Sept. 2017 at Coimbatore	Sri Ramakrishna Institute of Technology, Coimbatore

50.	Mahacon IV-2017, Colloquium on Birth Defects	15-16 Sept. 2017 at Navi Mumbai	MGM Medical College, Mumbai
51.	Seminar on Internet of Things In Healthcare (Ioth-2017)	15-16 Sept. 2017 at Perundurai(Erode) TN	School of Computer Technology & Applications, Kongu Engineering College, Erode
52.	7 th Euro-India International Conference on Holistic Medicine(Ichm-2017)	15-17 Sept. 2017 at Kottayam (Kerala).	Institute For Holistic, Medical Sciences (IHMS), Kottayam
53.	National Conference on Advances In Research on Neurological Disorders & Workshop on Application of Neurobiological Techniques to Study Neurological Disorders	15-22 Sept. 2017 at Varanasi (UP).	Banaras Hindu University, Varanasi
54.	UP Cytocon 2017, 5 th Annual Conference of UP Chapter of Indian Academy of Cytologists	16-17 Sept. 2017 At Lucknow (UP).	Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow
55.	Seminar on Mathematical Morphology and Graph: Application to Interactive Medical Image Segmentation	19-20 Sept. 2017 at Pollachi (TN).	P.A. College of Engineering & Technology, Pollachi
56.	Seminar on Impact of Machine Learning In Bio Informatics	19-20 Sept. 2017 at Coimbatore	KGISL Institute of Technology, Coimbatore
57.	Seminar on Recent Advances in Ventricular Assist Devices: A Scope For Improving Cardiac Support	20-21 Sept. 2017 at Pollachi (TN)	P.A. College Of Engineering & Technology, Pollachi
58.	International Conference on Lead, Other Heavy metals and Nutrient Interaction- Challenges For Prevention of Toxicity, 3 rd Annual Lead Conference (Leadcon-2017)	21-23 Sept. 2017 at Hyderabad	ICMR- National Institute of Nutrition, Hyderabad
59.	Seminar on Medical Devices and Diagnostics: Current Need and Opportunities in India	22-23 Sept. 2017 at Pune	Dr. D.Y. Patil Institute of Pharmaceutical Sciences & Research, Pune
60.	Seminar on Data Analytics Techniques to Predict Epidemics From Public Health Records	22-23 Sept. 2017 at Chennai	Rajalakshmi Engineering College, Chennai
61.	Workshop on Utilization of Statistical Software Applications: A Challenge to Health Service Research	. 23 Sept. 2017 at Kelambakkam (Kanchipuram) TN.	Chettinad Hospital & Research Institute, Rajiv Gandhi Salai, Kanchipuram
62.	Seminar on Bio Medical Application of Water Jet Machine	23 rd Sept. 2017 at Karur (TN).	N.S.N. College of Engineering & Technology, Karur
63.	2 nd International Conference Frontier In Pharmaceutical sciences and Research	23-24 Sept. 2017 at Raipur (CG), MP	Columbia Institute of Pharmacy, Raipur
64.	Workshop on Creating Insight on Poly Cystic Ovarian Disease & Smart Health Management Among Young Women	25-26 Sept. 2017 at Thanjavur (TN)	Bon Secours College For Women, Thanjavur
65.	International Seminar on Contemporary Trends In Health Psychology: Role of Psychologists	25-26 Sept. 2017 at Tirupati (AP).	S.V. University, Tirupati

66.	The 6 th Asian Biomaterials Congress (ABMC 6) on Innovative Biomaterials: Technologies For Life and Society	25 -27 Oct.2017 at Thiruvananthapuram (Kerala).	Sree Chitra Tirunal Institute For Medical Sciences & Technology, Thiruvananthapuram
67.	30 th Annual Conference, Indian Society For Dental Research, IADR, India Division	30 th Sept. – 2 nd Oct. 2017 at New Delhi	AIIMS, Ansari Nagar, New Delhi

Various Technical Committees/Groups' Meetings

The following meeting of various technical committees/Groups of the Council were held in July-September 2017		
1	The meeting of for "Screening and shortlisting the applications, a screening-cum-selection committee" (ECD-I)	05-07-17
2	The meeting of for "Screening and shortlisting the applications, a screening-cum-selection committee"(ECDI)	06-07-17
3	The GBD India Environmental risk factors and air pollution expert group meeting (NCD-I & II)	07-07-17
4	Training cum workshop on Implementation of Public Financial Management System (PFMS)	10-07-17
5	Training cum workshop on Implementation of Public Financial Management System (PFMS)	11-07-17
6	Training/workshop under ICMR task force study "prevalence of fluorosis in the community of selected districts of India and development of an appropriate intervention model for prevention & control of fluorosis"(Nutrition)	11-07-17
7	Task force group meeting on "Stroke Registry"(NCD-I)	11-07-17

8	Meeting to draft for PCPNDT Act(RBMH&CH)	13-07-17
9	ICMR JRF 2017 examination 16th July 2017 (at 12 Centers)	16-07-17
10	The expert group meeting to "Discuss the plan of various activities on AES in UP"(ECD-I)	17-07-17
11	ICMR task force study on pediatric HIV (RBMH&CH)	01-08-17
12	24 th Sub-committee meeting of National Apex Committee for Stem Cell Research and Therapy (NAC-SCRT)	01-08-17
13	Meeting of the Central Ethics Committee on Human Research (CECHR)	02-08-17
14	Meeting of the Vaccines and Immunization research network	02-08-17
15	Meeting of screening on Hemophilia	03-08-17
16	Division of Basic Medical Sciences drafting committee meeting for the revision of national guidelines for stem cell research and therapy (2013)	09-08-17
17	India TB research consortium written exam/interview for the post of consultants	10-08-17
18	Walk-in-interview for the post of junior project assistant (Grade-B) in the project "Burden of Non Communicable Diseases and Associated Risk Factors for India"	10-08-17

19	“The future of women’s health: Using data & research to shape policy & programs”(RBMH&CH)	10-08-17
20	“Meeting to review the proposals ICMR-RCN under Indo - Norwegian co-operation on AMR”	16-08-17
21	ICMR India TB research Consortium written exam / interview for the post of consultant accounts cum admin	17-08-17
22	The meeting of task force/advisory group for the multi-centric task force project entitled” assessment of Viral Hepatitis burden in North East India a systematic study”	18-08-17
23	Walk-in-interview for post of research assistant	18-08-17
24	“Cleft Lip and Palate Anomaly in India: Clinical profile risk factors and current status of treatment: a hospital based study”	
25	“Meeting to review the proposals ICMR-RCN under Indo-Norwegian co-operation on AMR”	21-08-17
26	Meeting of “Task force project on registry of people with Diabetes with young age at the onset”	21-08-17
27	“A meeting to review the progress of the projects funded under Tribal sub plan”	23-08-17
28	“Joint ICMR-ICAR meeting for establishment a National Institute of Zoonosis at Nagpur”	24-08-17
29	The meeting of the expert and PIs along with CTD representative to discuss the protocol for the trial entitled” Phase-III multicentre open label.... XDR-TB”	24-08-17
30	Workshop to developing the protocol for clinical trial with new TB vaccines (VPM1002, DAR901 & MIP)	28 th & 29 th August 2017
31	“Expert group meeting to finalize tender documents for organizing exhibitions by ICMR”	29-08-17
32	Meeting on multicentre task force project “Effect of Outdoor Air Pollution on Acute Respiratory Symptoms in Delhi”	30-08-17
33	123 rd Health Ministry’s Screening Committee meeting (HMSC)	30-08-17
34	“A meeting of experts to discuss AMSP activities part of AMR network”	31-08-17

35	“A meeting of screening committee to screen the LOIs on implementation research”	31-08-17
36	A walk-in interview for the post of "Consultant (Bio-Medical) research scientist (Contractual)"	01-09-17
37	12th CBBTDEC meeting	01-09-17
38	Fellowship expert group meeting	04-09-17
39	Expert group meeting on registry for rare disease	05-09-17
40	Selection committee meeting for one post of computer programmer, grade-B on contractual mode in the Indian Journal of Medical Research (IJMR Unit)	05-09-17
41	Expert group meeting to discuss "Influenza research priorities"	06-09-17
42	Experts cum monitoring committee meeting on "National registry of art clinics and banks in India"	06-09-17
43	Walk-in-interview for Scientist "B"	07-09-17
44	A meeting to discuss processing of SRF/RA fellowships proposals with heads of divisions and programme officers	07-09-17
45	Potential collaboration to strengthen Non-Communicable Disease interventions	07-09-17
46	A meeting of the first steering committee meeting-rotavirus vaccine impact assessment study	12-09-17
47	"Task force group meeting to review the 2nd annual report of Indo-German Project" (ICMR-EU) under Dr Rajesh Singh	12-09-17
48	The 2nd meeting of the India advisory panel on 5th global forum on TB Vaccines"	12-09-17
49	Scientific Advisory Committee meeting on "Centre for Advance Research (CAR)" at NIMHANS Bangalore	12-09-17
50	The project review committee meeting in the area of oral health	13-09-17
51	The meeting of the "Expert Committee" under the chairmanship of Dr. V.M. Katoch former secy. DHR & DG ICMR	18-09-17

52	A meeting with Mosteq (Israeli company) to present their Dengue control technology and explore collaboration	18-09-17
53	Talk by Dr. Michael H. Merson Director, Duke Global Health Institute of Duke University on "International collaboration for global health-the US perspective"	19-09-17
54	25th Sub-committee meeting of National Apex Committee for System Cell Research and Therapy (NAC-SCRT)	19-09-17
55	Expert group meeting to discuss the plan for DHS study at Gorakhpur	21-09-17
56	Walk-in-interview for Scientist 'C'	21-09-17
57	Technical Advisory Committee (TAC) for the methodology group in the project entitled "Burden of Non-Communicable Diseases and Associated Risk factors for India " (BOD-NCD)	21-09-17

58	Selection Committee meeting for the posts of scientist-III and scientist-II (Non-medical) under the project entitled "Effect of non-ionizing electromagnetic field on human health: A prospective cohort study"	23-09-17
59	Pilot study for establishing nationwide network of Registries on Management of Acute Coronary Event (MACE Registries)	26-09-17
60	A meeting of screening committee to screen the LOIs on Implementation research	27-09-17
61	The selection committee meeting for the Post Doctoral Fellowship (PDF)-16th BATCH	27-09-17
62	The meeting on "BEAT (Building Evidence for Advancing new Treatment for pre -XDR/DR-TB) TB Study"	28-09-17

