STRICTLY EMBARGOED FOR RELEASE UNTIL 1130 HRS ON 18 SEPTEMBER 2019 INDIA TIME

First comprehensive estimates of trends of key child and maternal malnutrition indicators in every state of India

- The disease burden and death rate attributable to malnutrition have dropped substantially in India, but malnutrition is still the leading risk factor underlying deaths in under-five children and health loss in persons of all ages considered together.
- The disease burden rate attributable to malnutrition in children varies 7-fold between the states, and is highest in Rajasthan, Uttar Pradesh, Bihar and Assam, followed by Madhya Pradesh, Chhattisgarh, Odisha, Nagaland and Tripura.
- Among the malnutrition indicators, low birth weight is the biggest contributor to disease burden followed by child growth failure which includes stunting, underweight and wasting.
- The prevalence of malnutrition indicators and their rates of improvement vary substantially between the states of India.
- To achieve the National Nutrition Mission 2022 targets and the UNICEF/WHO 2030 targets, the rate of improvement in low birth weight, stunting, underweight, wasting, an anaemia in women and children, and exclusive breastfeeding have to accelerate further.
- The momentum being built by the National Nutrition Mission to reduce malnutrition across India can utilise the trends reported in this paper as a reference to determine the additional effort needed in each state to meet the targets.

New Delhi, 18 September 2019 – The first comprehensive estimates of disease burden due to child and maternal malnutrition and the trends of its indicators in every state of India from 1990 are published today in *The Lancet Child & Adolescent Health* by the **India State-Level Disease Burden Initiative**. The findings show that although the overall under-five death rate in India as well as the death rate due to malnutrition has decreased substantially from 1990 to 2017, malnutrition is still the leading risk factor for death in children under-five years for every state of India, and is also the leading risk factor for disease burden for all ages considered together in most states of India. The malnutrition trends over about three decades reported in this paper utilized all available data sources from India, which enable more robust estimates than the estimates based on single sources that may have more biases. The state-specific findings described in this scientific paper highlight the extent of the effort needed in each state to achieve the national and global targets for various malnutrition indicators.

The India State-Level Disease Burden Initiative is a joint initiative of the Indian Council of Medical Research, Public Health Foundation of India, and Institute for Health Metrics and Evaluation in collaboration with the Ministry of Health and Family Welfare, Government of India, along with experts and stakeholders associated with over 100 Indian institutions, involving many leading health scientists and policy makers from India. This scientific paper involved a large number of collaborators, including many leading malnutrition experts from India.

On the release of these findings, **Prof. Vinod K. Paul,** Member NITI Aayog said, "The study findings are released at an opportune time when Government of India is intensifying its efforts to address the issue

of malnutrition across the country. September is being observed as *Poshan Maah* with the aim of reaching every household with the message of nutrition. The trends reported in this scientific paper for every State indicate the efforts needed in each State to control malnutrition. State governments are being encouraged to intensify efforts to reduce malnutrition and undertake robust monitoring to track the progress. Focus on improving the overall nutritional status of girls and women during the preconception and pregnancy period, providing quality antenatal care will positively influence low birth weight indicators and extend the benefits to next generation."

Prof. Balram Bhargava, Secretary to the Government of India, Department of Health Research, Ministry of Health & Family Welfare, and Director General, ICMR said, "In our commitment to the *Poshan Abhiyaan*, we are taking important steps to augment monitoring of malnutrition indicators across the country. The National Institute of Nutrition, an ICMR institute, and other partners are setting in place mechanisms to ensure that there are more data available on malnutrition in the various states of India which will help monitor progress. The findings reported in the paper published today highlight that there are wide variations in the malnutrition status between the states. It is important therefore to plan the reduction in malnutrition in a manner that is suitable for the trends and context of each state."

Prof. Lalit Dandona, Director of the India State-Level Disease Burden Initiative and senior author of the paper said, **"**Inclusion of data from all available sources in India over three decades has enabled robust estimation of malnutrition trends for every state in this study, which is a useful reference for further efforts to improve nutritional status across India. This study reports that malnutrition has reduced in India, but continues to be the predominant underlying risk factor for child deaths, underscoring it importance in addressing child mortality. It reveals that while it is important to address the gaps in all malnutrition indicators, low birth weight needs particular policy attention in India as it is the biggest contributor to child death among all malnutrition indications and its rate of decline is among the lowest. Another important revelation is that overweight among a subset of children is becoming a significant public health problem as it is increasing rapidly across all states of India."

Dr. Soumya Swaminathan, Chief Scientist at the World Health Organization and first author on this paper said, "The study findings have highlighted where efforts need to be intensified. For substantial improvements across the malnutrition indicators, states will need to implement an integrated nutrition policy to effectively address the broader determinants of under nutrition across the life cycle. Focus will be needed on major determinants like provision of clean drinking water, reducing rates of open defecation, improving women's educational status, and food and nutrition security for the most vulnerable families. Further, enhancing agricultural productivity and food security, promoting nutrition-sensitive agriculture, coupled with harmonisation of efforts across ministries and sectors, political will and good governance are required. We need to engage all members of the community including schools, health workforce and farmers to bring about a commitment to improve the health of our women and children."

Dr. R. Hemalatha, Director, National Institute of Nutrition, ICMR said, "NIN will continue to play an integral role in unifying the diverse nutritional goals of the country and providing solutions in the

changing dietary landscape due to changes in food patterns, effect of climate change on agricultural patterns and changing lifestyles of the Indian population. We need intensive monitoring of the malnutrition indicators as well as mass awareness programmes at the community-level to increase the diversity of food items consumption."

Dr. Henk Bekedam, WHO Representative to India said, "Malnutrition in children is an outcome of inadequate maternal nutrition, poor sanitation and hygiene and suboptimal infant feeding practices. Improvement in nutrition, therefore, is linked not only with food availability and access, but also with food safety and environment. The Prime Minister's vision of *Swachh Bharat* together with the *Poshan Abhiyaan* will play a critical role in reducing malnutrition and helping the country to achieve the 2030 nutrition goals."

Prof. K. Srinath Reddy, President, Public Health Foundation of India said, "India's growth story would remain incomplete if malnutrition continues to throw a dark shadow on development. The national resolve to eliminate undernutrition in all forms must be translated into effective action across all states of India, through earnest execution of POSHAN Abhiyaan. At the same time, multi-sectoral actions to enable adoption of health eating practices for prevention of non-communicable disease must become an integral part of our national nutrition policy. If we have to protect the health of our young people and also realise the demographic dividend of a productive population, we need urgent action as alerted by this report."

Prof. Christopher Murray, Director, Institute for Health Metrics and Evaluation said, "While malnutrition declines observed across India over the past three decades are encouraging, it remains a serious and sizable health risk in nearly all states. These findings are a critical roadmap for policymakers seeking to root out intransigent child and maternal malnutrition at the state level in order to reach national and global goals."

The findings reported in the paper published today are part of the Global Burden of Disease Study 2017. The analytical methods of this study have been refined over two decades of scientific work, which has been reported in over 16,000 peer-reviewed publications, making it the most widely used approach globally for disease burden estimation. These methods enable standardized comparisons of the health loss caused by different diseases and risk factors, between different geographies, sexes, and age groups, and over time in a unified framework. A key metric used for this comparison is disability-adjusted life years (DALYs), which are the sum of the number of years of life lost due to premature death and a weighted measure of the years lived with disability due to a disease or injury.

Scientific paper published today:

India State-Level Disease Burden Initiative Malnutrition Collaborators. The burden of child and maternal malnutrition and the trends in its indicators in the states of India: the Global Burden of Disease Study 1990–2017. *Lancet Child & Adolescent Health*. 18 September 2019. http://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(19)30273-1/fulltext

Key findings from the paper:

- The death rate attributable to malnutrition in under-5 children in India has dropped by two-thirds from 1990 to 2017.
- Malnutrition is however still the underlying risk factor for 68% of the deaths in under-five children in India, and is the leading risk factor for disease burden in persons of all ages considered together contributing 17% of the total DALYs.
- The major disease conditions through which malnutrition results in disease burden and death in under-five children in India are neonatal disorders, lower respiratory infections, and diarrhoeal diseases.
- The DALY rate attributable to malnutrition in children varies 7-fold between the states and is highest in Rajasthan, Uttar Pradesh, Bihar and Assam, followed by Madhya Pradesh, Chhattisgarh, Odisha, Nagaland and Tripura.
- Among the malnutrition indicators, low birth weight is the largest contributor to child deaths in India, followed by child growth failure which includes stunting, underweight, and wasting.
- The prevalence of low birth weight was 21% in India in 2017, ranging from 9% in Mizoram to 24% in Uttar Pradesh. The annual rate of reduction was 1.1% in India between 1990 and 2017, ranging from 3.8% in Sikkim to 0.3% in Delhi.
- The prevalence of child stunting was 39% in India in 2017. This ranged from 21% in Goa to 49% in Uttar Pradesh, and was generally highest in the EAG states. The annual rate of reduction was 2.6% in India between 1990 and 2017, which varied from 4% in Kerala to 1.2% in Meghalaya.
- The prevalence of child underweight was 33% in India in 2017, ranging from 16% in Manipur to 42% in Jharkhand. The annual rate of reduction was 3.2% in India between 1990 and 2017, ranging from 5.4% in Meghalaya to 1.8% in Delhi.
- The prevalence of child anaemia was 60% in India in 2017, ranging from 21% in Mizoram to 74% in Haryana. The annual rate of reduction was 1.8% in India between 1990 and 2017, which varied from 8.3% in Mizoram to no significant reduction in Goa.
- The prevalence of anaemia in women was 54% in India in 2017, ranging from 28% in Mizoram to 60% in Delhi. The annual rate of reduction was 0.7% in India between 1990 and 2017, varying from 3.4 % in Nagaland to no significant reduction in Himachal Pradesh.
- The prevalence of exclusive breastfeeding was 53% in India in 2017, ranging from 34% in Meghalaya to 74% in Chhattisgarh. The annual rate of increase in India between 1990 and 2017 was 1.2%, ranging from 4% increase in Gao to a slight reduction in Uttar Pradesh.
- The prevalence of child overweight was 12% in India in 2017. It was highest in the more developed states, but it is rapidly increasing in all states of India. This annual rate of increase

between 1990 and 2017 was 5% in India, which varied from 7.2% in Madhya Pradesh to 2.5% in Mizoram.

- The National Nutrition Mission's plans to accelerate improvements in the malnutrition indicators to meet the targets can be informed by the trends reported in this paper, which can serve as a useful guide to the extent of effort needed in each state to control malnutrition and to reduce disparities between the states.

Targets set by the National Nutrition Mission 2022 and the WHO/UNICEF 2030

National Nutrition Mission 2022 targets
Low birth weight: 2 percentage points reduction in prevalence annually from 2017 to 2022
Child stunting: prevalence of 25% in 2022
Child underweight: 2 percentage points reduction in prevalence annually from 2017 to 2022
Anaemia: 3 percentage points reduction in prevalence annually in children under-five and in women 15-49 years of age from 2017 to 2022
WHO/UNICEF 2030 targets
Low birth weight: 30% reduction in prevalence from 2012 to 2030
Child stunting*: 50% reduction in number of children under-five who are stunted from 2012 to 2030
Child wasting: prevalence of less than 3% by 2030
Anaemia: 50% reduction in prevalence in women 15-49 years of age from 2012 to 2030
Breastfeeding: prevalence of exclusive breastfeeding in the first 6 months of at least 70% by 2030
Child overweight: prevalence of less than 3% by 2030

*A relative reduction in the prevalence of stunting was estimated instead of the absolute numbers for consistency with other indicators, as all other targets are based on prevalence.

These persons could be contacted for discussion on the findings and their implications:

Prof Balram Bhargava and Dr G S Toteja, Indian Council of Medical Research, New Delhi
Prof Vinod K Paul, NITI Aayog, Government of India, New Delhi
Dr R Hemalatha, National Institute of Nutrition, Indian Council of Medical Research, Hyderabad
Dr Soumya Swaminathan, WHO, Geneva
Dr Hendrik J Bekedam, WHO India Country Office, New Delhi
Dr Subodh S Gupta, Mahatma Gandhi Institute of Medical Sciences, Wardha
Prof Lalit Dandona, Public Health Foundation of India, Gurugram

About the India State-Level Disease Burden Initiative

The India State-Level Disease Burden Initiative is a collaborative effort between the Indian Council of Medical Research (ICMR), Public Health Foundation of India (PHFI), Institute for Health Metrics and Evaluation (IHME), and a number of other key stakeholders in India, including academic experts and institutions, government agencies and other organizations, under the aegis of the Ministry of Health & Family Welfare. About 300 leading scientists and experts representing close to 100 institutions across India are engaged with this collaborative work. The work of this Initiative is overseen by an Advisory Board consisting of eminent policymakers and involves extensive engagement of 16 domain expert groups with the estimation process. The Health Ministry Screening Committee at the Indian Council of Medical Research and the ethics committee of the Public Health Foundation of India approved the work of the India State-Level Disease Burden initiative.

The first set of findings by the India State-Level Disease Burden Initiative on the variations in epidemiological transition across the states of India were presented in a *Report* released by the Vice-President and Health Minister of India and in a scientific paper published in *The Lancet* in November 2017:

- Indian Council of Medical Research, Public Health Foundation of India, and Institute for Health Metrics and Evaluation. India: Health of the Nation's States — The India State-Level Disease Burden Initiative. New Delhi: ICMR, PHFI, and IHME, 2017.
  https://www.icmr.nic.in/sites/default/files/reports/2017%20India%20State-Level%20Disease%20Burden%20Initiative%20-%20Full%20Report.pdf
  https://phfi.org/the-work/research/the-india-state-level-disease-burden-initiative/
  http://www.healthdata.org/disease-burden-India
- India State-Level Disease Burden Initiative Collaborators. Nations within a nation: variations in epidemiological transition across the states of India, 1990-2016 in the Global Burden of Disease Study. *The Lancet* 2017.
  https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)32804-0/fulltext

The Initiative has subsequently published detailed topic-specific papers in the Lancet journals in 2018 on state-level trends of cardiovascular diseases, diabetes, chronic respiratory diseases, cancer, suicide, and air pollution, as well as a commentary in The Lancet on the relevance of these findings for health policy in India:

- India State-Level Disease Burden Initiative CVD Collaborators. The changing patterns of cardiovascular diseases and their risk factors in the states of India: the Global Burden of Disease Study 1990-2016. *The Lancet Global Health* 2018.
  https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(18)30407-8/fulltext
- India State-Level Disease Burden Initiative Diabetes Collaborators. The increasing trend of diabetes and variations among the states of India: the Global Burden of Disease Study 1990–2016. *The Lancet Global Health* 2018.
  https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(18)30387-5/fulltext
- India State-Level Disease Burden Initiative CRD Collaborators. The burden of chronic respiratory diseases and their heterogeneity across the states of India: the Global Burden of Disease Study 1990-2016. *The Lancet Global Health* 2018
  https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(18)30409-1/fulltext

- India State-Level Disease Burden Initiative Cancer Collaborators. The burden of cancers and their variations across the states of India: the Global Burden of Disease Study 1990–2016. *The Lancet Oncology* 2018 https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(18)30447-9/fulltext
- India State-Level Disease Burden Initiative Suicide Collaborators. Gender differentials and state variations in suicide deaths in India: the Global Burden of Disease Study 1990–2016. *The Lancet Public Health* 2018. https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(18)30138-5/fulltext
- India State-Level Disease Burden Initiative Air Pollution Collaborators. The impact of air pollution on deaths, disease burden, and life expectancy across the states of India: the Global Burden of Disease Study 2017. *The Lancet Planetary Health* 2018. https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(18)30261-4/fulltext
- Informing NCD control efforts in India on the eve of Ayushman Bharat. *The Lancet* 2018. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32172-X/fulltext

The paper published today India State-Level Disease Burden Initiative on malnutrition is the next in the series of papers that describe comprehensively the trends of major diseases and risk factors aimed at informing policy to improve population health in India.

The Indian Council of Medical Research (ICMR), is the apex government body in India for the formulation, coordination and promotion of biomedical and health research. It is one of the oldest medical research bodies in the world. Besides the headquarters in New Delhi, ICMR has 26 research institutes, centres and units across India. ICMR funds both intramural and extramural research in India. The priorities of ICMR coincide with the national health priorities and have the goal of reducing the total burden of disease and to promote health and well-being of India's population. As part of this agenda, ICMR is interested in improving the estimates of disease burden and risk factors in India, especially at the sub-national levels, for better health planning, policy framing and fund allocation. For more information please visit http://www.icmr.nic.in

The Public Health Foundation of India (PHFI) is a premier public health institution in India with presence across the country. It collaborates with multiple constituencies including Indian and international academia, state and central governments, multi- and bi-lateral agencies, and civil society groups. The vision of PHFI is to strengthen India's public health institutional and systems capability and provide knowledge to achieve better health outcomes for all through strengthening training, research and policy development in public health. As part of this vision, PHFI has major interest in improving the robustness of sub-national disease burden estimates to inform health action and in evaluating the impact of large-scale population health interventions. For more information please visit www.phfi.org

The Institute for Health Metrics and Evaluation (IHME) is a global research institute at the University of Washington in Seattle that provides independent, rigorous, and comparable measurement of the world's most important health problems and evaluates the strategies used to address them. IHME aims to identify the best strategies to build a healthier world by measuring health, tracking program performance, finding ways to maximize health system impact and developing innovative

measurement systems to provide a foundation for informed decision-making that will ultimately allocate resources to best improve population health. For more information please visit www.healthdata.org

For more information, please contact:

Indian Council of Medical Research
Mr. Syed Adil Shamim Andrabi
syed.adil@icmr.gov.in
Mobile: +91 9599332718

Public Health Foundation of India
Ms. Gina Sharma
gina.sharma@phfi.org
Mobile: +91 9811887088

Description of Key Terms

Malnutrition: Malnutrition mainly refers to undernutrition in India but also includes the increasing problem of overweight.

The main indicators of **child and maternal malnutrition** are:

- **Low birthweight:** It is defined as birth weight less than 2.5 kg.
- **Child stunting:** A child is considered stunted if her/his height-for-age is more than two standard deviations below the WHO Child Growth Standards median.
- **Child wasting:** A child is considered wasted if her/his weight-for-height is more than two standard deviations below the WHO Child Growth Standards median.
- **Child underweight:** A child is considered underweight if her/his weight-for-age is more than two standard deviations below the WHO Child Growth Standards median.
- **Anaemia:** Anaemia in children under-five is defined as haemoglobin less than 110 g/L. Anaemia in pregnant and non-pregnant women 15-49 years of age is defined as haemoglobin less than 110g/L and 120 g/L, respectively.
- **Exclusive breastfeeding:** It is defined as no food or drink (not even water), except breast milk (including milk expressed or from a wet nurse) for the first 6 months of life, but allows the infant to receive ORS, drops and syrups (vitamins, minerals and medicines). This is considered good for the child's health development.
- **Child overweight:** Overweight in children is defined as body-mass index above the month wise cut-off for normal weight as reported in the International Obesity Task Force tables.

Child growth failure: This term includes child stunting, child wasting and child underweight.

Disability-adjusted life-years (DALYs): DALYs are the sum of the number of years of life lost due to premature death and a weighted measure of the years lived with disability due to a disease or injury. DALYs for particular diseases are attributed to malnutrition based on the available research evidence.

Socio-demographic Index (SDI): A summary measure that identifies where states, countries or other geographic areas fall on the spectrum of socio-demographic development. SDI is a composite measure based on per capita income, average educational attainment, and fertility rate, with the index value ranging from 0 to 1.

Uncertainty interval (UI): A range of values that is likely to include the correct estimate of risk exposure or health loss from a particular risk or cause. Narrow uncertainty intervals indicate that evidence is strong, while wide uncertainty intervals show that evidence is weak.