



Essential Interventions for
**Reducing Malnutrition in
Infants and Young Children:**
A Leadership Agenda for Action

The Coalition for
Sustainable Nutrition Security in India

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Nutrition Security in India

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Executive Summary

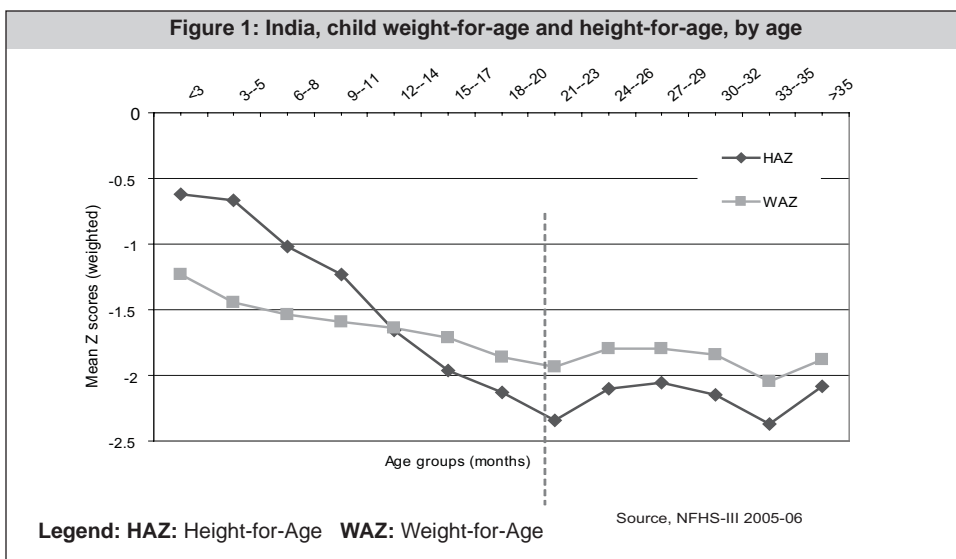
Malnutrition remains a major threat to the survival, growth and development of Indian children¹. The latest National Family Health Survey (NFHS-3, 2005-06) shows that 25 million Indian children – 20 per cent of children under five years old - are wasted (acutely malnourished) and 61 million children – 48 per cent of children under five years old - are stunted (chronically malnourished).

Rates of child malnutrition in India are among the highest in the world. The prevalence of child wasting in India (20 per cent) is twice as high as the average prevalence of child wasting in sub-Saharan Africa (9 per cent) and ten times higher than that in Latin America (2 per cent). The prevalence of child stunting in India (48 per cent) is more than four times higher than the prevalence of child stunting in China (11 per cent). More worrisome, the nutrition situation of Indian children has not improved significantly over the last decade. For example, according to NFHS-3, there has only been a very slight 0.5 per cent annual decrease in the prevalence of underweight children over the past six years.

Child malnutrition in India happens very early in life. NFHS-3 shows that 56 per cent of severe wasting happens before the age of two. Their nutritional status deteriorates rapidly over the first two years of life (Figure 1), and once this damage is done, catch up and recovery are almost impossible.

Therefore, improving the quality of foods, feeding practices, and the nutrition situation of children in the first two years of life, represent a critical window of opportunity to break the inter-generational cycle of malnutrition. If this critical opportunity is missed, child malnutrition will continue to self-perpetuate: malnourished girls will become malnourished women, who give birth to low birth weight infants, who suffer from poor nutrition in the first two years of life. The best opportunity to break this vicious inter-generational cycle is to concentrate efforts on improving the nutrition of infants and young children *from conception through the first two years of life*.

¹ For the purpose of this paper, the word 'malnutrition' refers to nutritional deficiencies in children as measured by wasting, stunting, underweight, micronutrient deficiencies and/or anaemia.



The Coalition for Sustainable Nutrition Security in India, chaired by Professor M S Swaminathan, is a group of public and private sector leaders who have united in an effort to improve nutrition security, ensuring that every Indian citizen has access to a balanced diet, safe drinking water, environmental hygiene, sanitation and primary health care. The Coalition has reviewed, endorsed and released this *Leadership Agenda for Action* to promote policy, programme and budgetary focus on the most essential interventions needed to reduce malnutrition in this most critical group: infants and young children (see text box “Developing the List of Essential Interventions”).

Developing the List of Essential Interventions

In February 2008, the Coalition for Sustainable Nutrition Security in India requested an Expert Task Force to identify the most important evidence-based, cost-effective interventions to reduce malnutrition in infants and young children (0-24 months old) in India. The Expert Task Force, chaired by UNICEF, adopted the following process:

- Inviting a wide range of national and international experts and stakeholders, representing different perspectives, to contribute as Expert Task Force members and/or reviewers;
- Agreeing on the goal, objectives, methodology, and expected results of the Expert Task Force deliberations and work;

- Reviewing existing global and national epidemiological and programmatic evidence;
- Building consensus on the most important evidence-based, high-impact, cost-effective interventions with the greatest potential to make a major contribution to the reduction of malnutrition in infants and young children in India; and
- Identifying the intervention (referred to as the “what?”), the rationale (the “why?”), and the existing opportunities for scaling up (the “how?”) for these essential interventions.

The Coalition requested USAID to support a Secretariat, which provided administrative and logistical support to the Expert Task Force. All the members of the Expert Task Force declare that the best interests of Indian children has been the one and only guiding principle in their contribution to this *Leadership Agenda* (see Attachment 1 for names and affiliations of the members of the Expert Task Force).

Following this careful and participatory process, the Expert Task Force submitted its recommended *Leadership Agenda for Action* to reduce malnutrition in infants and young children in India to the Coalition. The Coalition reviewed and endorsed this Leadership Agenda in September 2008.

The Coalition calls for an increased policy, programme, and budgetary focus on ten proven interventions that can dramatically reduce malnutrition in infants and young children, as follow:

- 1. Timely initiation of breastfeeding within one hour of birth:** Every newborn starts breastfeeding within one hour of birth to take advantage of the newborn’s intense suckling reflex and alert state and to stimulate breast milk production. Good breastfeeding skills - including proper positioning and attachment - are established to increase the newborn’s suckling efficiency, mother’s breast milk production, and infant’s breast milk intake.
- 2. Exclusive breastfeeding during the first six months of life:** Every infant is exclusively breastfed in the first six months of life. The infant is fed only breast milk and is not given any fluids, milk, or foods, not even water. Exclusive breastfeeding, with frequent, on-demand feedings ensures maximum protection against malnutrition, disease, and death, while contributing to child spacing and lower fertility rates.

- 3. Timely introduction of complementary foods at six months:** Every infant starts receiving complementary foods by the beginning of the seventh month of life while breastfeeding continues until 24 months and beyond. By the beginning of the seventh month of life breast milk alone cannot meet an infant's energy and nutrient requirements. At this time complementary feeding should begin. Introducing complementary foods before is both unnecessary and dangerous.
- 4. Age-appropriate complementary feeding, adequate in terms of quality, quantity and frequency for children 6-24 months:** Every child 6-24 months old is fed age-appropriate, energy and nutrient-dense, diverse complementary foods with increased quantities, nutrient density, and frequency as the child increases in age. Child feeding is responsive and active. Children are given prophylactic iron and folic acid supplements to prevent anaemia. Hygienic practices are followed when feeding children.
- 5. Safe handling of complementary foods and hygienic complementary feeding practices:** Every child 6-24 months old is fed using safe handling (preparation and storage) and hygienic feeding practices of complementary foods by – among others - washing caregivers' and children's hands before food preparation and eating, serving foods immediately after preparation, using clean utensils, and avoiding feeding bottles.
- 6. Full immunisation and bi-annual vitamin A supplementation with deworming:** Every child is protected from vaccine preventable diseases through a full course of immunisation delivered through the routine immunisation system at set times in the child's first year of life. In addition, all children 6-59 months old are further protected from mortality, morbidity, and malnutrition with preventive vitamin A supplementation and deworming twice yearly.
- 7. Frequent, appropriate, and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhoea:** Every child is fed, actively and frequently, with age-appropriate and nutrient dense foods, during and after illness, while frequent, on-demand breastfeeding continues to increase fluid and nutrient intake. Children with diarrhoea also receive appropriate rehydration therapy including a full course of zinc supplements as per national guidelines for the treatment of diarrhoea.
- 8. Timely and quality therapeutic feeding and care for all children with severe acute malnutrition:** Every child with severe acute malnutrition is provided with therapeutic foods and care in a timely manner, for life-saving rapid weight gain

and recovery. Care for children with severe acute malnutrition requires early case detection (before the development of medical complications), optimal therapeutic feeding and care protocols, and access to therapeutic foods, including ready-to-use therapeutic foods.

9. Improved food and nutrient intake for adolescent girls particularly to prevent anaemia: Every adolescent girl is protected against nutritional deficiencies and anaemia through dietary counselling, weekly iron and folic acid supplementation, twice yearly (six months apart) deworming prophylaxis, and life-skills development to avoid early marriage and early pregnancy.

10. Improved food and nutrient intake for adult women, including during pregnancy and lactation: Every woman has access to sufficient quality and quantity of food including during pregnancy and lactation. Every pregnant woman and lactating mother takes iron and folic acid supplements daily to reduce maternal anaemia and improve pregnancy and lactation outcomes. Universal regular consumption of salt with adequate levels of iodine (> 15 ppm) is required, especially for pregnant women, in order to prevent foetal brain damage associated with iodine deficiency.

This paper also identifies specific opportunities for taking these ten essential interventions to national scale so as to reach every child, everywhere in India, to achieve an unprecedented impact on reducing child malnutrition and its associated poor health, growth, development and waste of human capital. This will also have the impact of reducing poverty and improving economic growth. The most important opportunities identified are listed below:

- Promote an evidence-based approach to the design and revision of key nutrition programmes, considering replication of proven interventions and programmes from within and outside of India.
- Focus on evidence-based, low-cost, high-impact interventions and deliver them at state-level for maximum impact in reducing the burden of malnutrition.
- Develop and expand the national policy framework to include 1) deworming for children 1-5 years of age, and provision of immunisation and vitamin A supplementation, 2) provision of weekly iron and folic acid supplementation, twice yearly deworming prophylaxis and nutrition and life-skills counselling for adolescent girls, and 3) standard, state-of-the art feeding and care for children with severe acute malnutrition, including the indigenous production and provision of ready to use therapeutic foods.

- Improve the performance of primary level providers and counsellors through improved results-focused training, communications materials, job aids, motivation, and supportive supervision.
- Harmonise nutrition communication guidelines and core messages across ministries and programmes.
- Initiate denominator-based planning and monitoring to expand coverage, starting with community-based micro-plans, anchored in good mapping of pregnant mothers and children 0-23 months old in the community.
- Promote monthly coordination and convergence meetings between Ministry of Health and Family Welfare (MHFW), Ministry of Women and Child Development (MWCD), development partners, and other non-governmental organisations (NGOs) as appropriate, especially at district and block level.
- Support and expand village Health and Nutrition Days to deliver these essential nutrition interventions.

India's leadership in many fields is recognised globally. The questions now are - Can India show its strength and leadership in improving the nutrition and well being of its children? Can India ensure that its economic successes are shared more equitably so that none of its children suffer from malnutrition? Can India uphold the national and international commitments it has made to the basic rights of children to nutrition and life?

The evidence and expert opinion indicate that implementing these ten Essential Interventions could halve the rates of child malnutrition in India over the next five years. Now is the time to combine the existing technical knowledge and political will to make history for children in India.

Ten Essential Interventions for Reducing Malnutrition in Infants and Young Children in India: A Leadership Agenda for Action

- 1. Timely initiation of breastfeeding within one hour of birth:** Every newborn starts breastfeeding within one hour of birth to take advantage of the newborn's intense suckling reflex and alert state and to stimulate breast milk production. Good breastfeeding skills - including proper positioning and attachment - are established to increase the newborn's suckling efficiency, mother's breast milk production, and infant's breast milk intake.
- 2. Exclusive breastfeeding during the first six months of life:** Every infant is exclusively breastfed in the first six months of life. The infant is fed only breast milk and is not given any fluids, milk or foods, not even water. Exclusive breastfeeding, with frequent, on-demand feedings ensures maximum protection against malnutrition, disease, and death, while contributing to child spacing and lower fertility rates.
- 3. Timely introduction of complementary foods at six months:** Every infant starts receiving complementary foods by the beginning of the seventh month of life while breastfeeding continues until 24 months and beyond. By the beginning of the seventh month of life breast milk alone cannot meet an infant's energy and nutrient requirements. At this time complementary feeding should begin. Introducing complementary foods before is both unnecessary and dangerous.
- 4. Age-appropriate complementary feeding, adequate in terms of quality, quantity and frequency for children 6-24 months:** Every child 6-24 months old is fed age-appropriate, energy and nutrient-dense, diverse complementary foods with increased quantities, nutrient density, and frequency as the child increases in age. Child feeding is responsive and active. Children are given prophylactic iron and folic acid supplements to prevent anaemia. Hygienic practices are followed when feeding children.
- 5. Safe handling of complementary foods and hygienic complementary feeding practices:** Every child 6-24 months old is fed using safe handling (preparation and storage) and hygienic feeding practices of complementary

foods by – among others - washing caregivers' and children's hands before food preparation and eating, serving foods immediately after preparation, using clean utensils and avoiding feeding bottles.

- 6. Full immunisation and bi-annual vitamin A supplementation with deworming:** Every child is protected from vaccine preventable diseases through a full course of immunisation delivered through the routine immunisation system at set times in the child's first year of life. In addition, all children 6-59 months old are further protected from mortality, morbidity, and malnutrition with preventive vitamin A supplementation and deworming twice yearly.
- 7. Frequent, appropriate, and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhoea:** Every child is fed, actively and frequently, with age-appropriate and nutrient dense foods, during and after illness, while frequent, on-demand breastfeeding continues to increase fluid and nutrient intake. Children with diarrhoea also receive appropriate rehydration therapy including a full course of zinc supplements as per national guidelines for the treatment of diarrhoea.
- 8. Timely and quality therapeutic feeding and care for all children with severe acute malnutrition:** Every child with severe acute malnutrition is provided with therapeutic foods and care in a timely manner, for life-saving rapid weight gain and recovery. Care for children with severe acute malnutrition requires early case detection (before the development of medical complications), optimal therapeutic feeding and care protocols, and access to therapeutic foods, including ready-to-use therapeutic foods.
- 9. Improved food and nutrient intake for adolescent girls particularly to prevent anaemia:** Every adolescent girl is protected against nutritional deficiencies and anaemia through dietary counselling, weekly iron and folic acid supplementation, twice yearly (six months apart) deworming prophylaxis, and life-skills development to avoid early marriage and early pregnancy.
- 10. Improved food and nutrient intake for adult women, including during pregnancy and lactation:** Every woman has access to sufficient quality and quantity of food including during pregnancy and lactation. Every pregnant woman and lactating mother takes iron and folic acid supplements daily to reduce maternal anaemia and improve pregnancy and lactation outcomes. Universal regular consumption of salt with adequate levels of iodine (> 15 ppm) is required, especially for pregnant women, in order to prevent foetal brain damage associated with iodine deficiency.

Essential Intervention 1

Timely initiation of breastfeeding within one hour of birth

Summary description

Every newborn starts breastfeeding within one hour of birth to take advantage of the newborn's intense suckling reflex and alert state and to stimulate breast milk production. Good breastfeeding skills - including proper positioning and attachment - are established to increase the newborn's suckling efficiency, mother's breast milk production, and infant's breast milk intake.

Why is this intervention essential?

- Timely initiation of breastfeeding within one hour of birth is a key intervention for neonatal and infant survival. Evidence from West Africa and South Asia shows that initiation of breastfeeding within one hour of birth can reduce neonatal mortality by up to 22 per cent.
- Timely initiation of breastfeeding within one hour of birth takes advantage of the newborn's active suckling reflex and alert state. Initiation of breastfeeding within one hour of birth with proper positioning and attachment ensures improved suckling efficiency by the newborn; this translates into increased breast milk production by the mother and increased breast milk intake by the infant.
- Initiating breastfeeding within one hour of birth reduces the risk of hypothermia – an important cause of neonatal mortality - as the skin-to-skin contact with the mother's body helps the newborn stay warm. This is particularly important for low birth weight newborns. Moreover, initiation of breastfeeding within one hour of birth reduces post-partum bleeding and the risk of haemorrhage - a major cause of maternal mortality - while fostering mother-infant bonding.
- The Global Strategy for Infant and Young Child Feeding (2002) and the National Guidelines on Infant and Young Child Feeding (2006) recognise timely initiation of breastfeeding within one hour of birth as a central behaviour for infant survival, growth, and development.

- However, late initiation of breastfeeding is a concern. NFHS-3 shows that only 25 per cent of Indian newborns start breastfeeding within one hour of birth. Higher rates of timely initiation of breastfeeding are observed among infants born to mothers who live in urban areas (30 per cent), have over ten years of formal education (34 per cent), are assisted by health personnel at delivery (32 per cent), deliver in a health facility (34 per cent), and/or belong to the highest wealth quintile (32 per cent).

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase efforts to inform policy makers and decision makers of the key role of timely initiation of breastfeeding in reducing neonatal and infant mortality, in order to improve programming efforts in this area. This could include the use of computer-based modelling to quantify the child survival benefits of timely initiation of breastfeeding.
- **Protocols and guidelines:** Harmonise communication goals and core messages across ministries and programmes at central, state and district levels. Include support for timely and successful initiation of breastfeeding in training protocols and guidelines related to pregnancy, delivery and newborn care used by the MHFW, MWCD and medical associations.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors in protecting, promoting and supporting timely initiation of breastfeeding, through improved training, communications materials and job aids, motivation and supportive supervision. Build breastfeeding support and problem-solving capacity in referral units and among medical doctors and public health professionals.
- **Outreach and community ownership:** Expand outreach to the broader community through *Gram Sabhas*, *Panchayats*, mothers' committees, self help groups, senior women, and personnel assisting mothers at delivery, in order to ensure the timely initiation of breastfeeding. Targeted outreach activities can be bundled with activities such as Village Health Committees and Nutrition and Health Days (NHDs). Initiate denominator-based planning to expand coverage, starting with community-based micro-plans anchored in good mapping of pregnant mothers and children in the community.
- **Supply, logistics, and delivery:** Ensure that primary care providers and counsellors have access to high quality communications materials and job aids on supporting timely initiation of breastfeeding, and that a referral system is in place.

- **Monitoring and Quality Assurance:** Include “*Proportion of children born in the last 23.9 months who were put to the breast within one hour of birth*” as an outcome indicator of progress and success in all national, state, and district level surveys as well as monitoring and information systems (MIS) of MHFW and MWCD programmes. Include process indicators such as *awareness of timely initiation and access to breastfeeding support* by skilled personnel in the monitoring systems and surveys. Use denominator-based planning and monitoring to improve coverage.
- **Coordination and synergy:** Develop agreed-upon operational guidelines for ensuring support for timely initiation of breastfeeding by both MHFW and MWCD staff. Utilise monthly coordination meetings especially at district and block levels for ensuring convergence. Improve focus of NHDs and other mechanisms to ensure that pregnant women are counselled prior to delivery and immediately after delivery by trained personnel such as *anganwadi* workers (AWW), auxiliary nurse midwives (ANM), and accredited social health activists (ASHA).

Essential Intervention 2

Exclusive breastfeeding during the first six months of life

Summary description

Every infant is exclusively breastfed in the first six months of life. The infant is fed only breast milk and is not given any fluids, milk, or foods, not even water. Exclusive breastfeeding, with frequent, on-demand feedings ensures maximum protection against malnutrition, disease, and death, while contributing to child spacing and lower fertility rates.

Why is this intervention essential?

- Breast milk meets all the fluid and nutrient requirements of infants in the first six months of life. Breast milk needs to be a newborn's first food, without any preceding (prelacteal) feeds, not even water, other fluids or ritual foods. Exclusive breastfeeding ensures the intake of colostrum - the first thick yellowish milk from the breast – which provides protection against infection as it has high levels of antibodies and protective factors.
- There is ample scientific evidence that supports the benefits of exclusive breastfeeding for both the mother and her infant. Exclusively breastfed infants are at much lower risk of infection from diarrhoea and acute respiratory infections than infants who are not exclusively breastfed. Exclusive breastfeeding enhances the infant's immune system while fostering optimal growth and development.
- Exclusive breastfeeding has benefits to mothers as it reduces post-partum haemorrhage, helps shrink the uterus back to normal size, delays the resumption of ovulation and the return of menses, increases birth-intervals, and reduces fertility. Longer birth intervals bring benefits to the mother and her children.
- Exclusively breastfed infants do not need water or other liquids to maintain good hydration, even in hot climates. Water supplementation is both unnecessary and dangerous as it reduces breast milk intake and introduces contaminants.

Exclusive breastfeeding is recognised as the single most important child survival intervention worldwide.

- In our country, the rate of exclusive breastfeeding among infants younger than six months is only 46 per cent. An additional 22 per cent of infants are fed breast milk with plain water. Therefore exclusive breastfeeding rates could increase from 46 per cent to 68 per cent by tackling the introduction of plain water in the first six months of life. The rates of exclusive breastfeeding need to increase significantly in order to reduce the current rates of neonatal, infant, and child mortality.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase efforts to inform policy makers and decision makers of the key role of exclusive breastfeeding in reducing neonatal, infant, and under-five mortality, in order to improve programming efforts in this area. This could include the use of computer-based modelling to quantify the child survival benefits of exclusive breastfeeding. Build awareness of and support for exclusive breastfeeding, the International Code of Marketing of Breastmilk Substitutes, the Infant Milk Substitutes Act and maternity entitlements. Improve legislation on maternity benefits.
- **Protocols and guidelines:** Harmonise communication goals and core messages across ministries and programmes at central, state and district levels. Include support for exclusive breastfeeding in training protocols and guidelines related to pregnancy, delivery and newborn care used by the MHFW, MWCD and medical associations. Develop practical guidelines and tools for the implementation and monitoring of laws related to maternity entitlements.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors in protecting, promoting and supporting exclusive breastfeeding, through improved training, communications materials and job aids, motivation and supportive supervision. Build breastfeeding support and problem solving capacity at referral centres and among medical doctors and public health professionals.
- **Outreach and community ownership:** Expand outreach to the broader community through *Gram Sabhas*, *Panchayats*, mothers' committees, self help groups, senior women, and personnel assisting mothers at delivery, in order to ensure exclusive breastfeeding. Targeted outreach activities can be bundled with the activities such as Village Health Committees and Nutrition and Health Days (NHDs).

- **Supply, logistics, and delivery:** Ensure that primary care providers and counsellors have access to high quality communications materials and job aids on supporting sustained exclusive breastfeeding and that a referral system is in place.
- **Monitoring and quality assurance:** Include “*proportion of infants 0-5.9 months of age who are fed exclusively with breast milk*” as an outcome indicator of progress and success in all national, state and district level surveys as well as in the monitoring and information systems (MIS) of MHFW and MWCD programmes. Include process indicators such as *awareness of exclusive breastfeeding and access to breastfeeding support by skilled personnel* in MIS systems and surveys.
- **Coordination and synergy:** Develop jointly agreed upon operational guidelines for ensuring support for exclusive breastfeeding by both MHFW and MWCD staff. Focus NHDs and other mechanisms to ensure that pregnant women are counselled prior to delivery and immediately after delivery by skilled personnel (e.g., by AWWs, ANMs, ASHAs). Improve monitoring of the Infant Milk Substitutes Act. Utilise monthly coordination meetings especially at district and block levels for ensuring convergence.

Essential Intervention 3

Timely introduction of complementary foods at six months

Summary description

Every infant starts receiving complementary foods by the beginning of the seventh month of life while breastfeeding continues until 24 months and beyond. By the beginning of the seventh month of life breast milk alone cannot meet an infant's energy and nutrient requirements. At this time complementary feeding should begin. Introducing complementary foods before is both unnecessary and dangerous.

Why is this intervention essential?

- Exclusive breastfeeding fully meets the energy and nutrient requirements of a child up to six months. After completing six months of life, every child needs to receive foods in addition to breast milk, to fully meet the substantial energy and nutrient needs in this period of rapid growth and development.
- Complementary feeding - the period when other foods or liquids are provided to the infant along with breast milk - should start by the beginning of the seventh month of life. The timely introduction of age-appropriate complementary foods is crucial to ensure that children continue to grow and develop to their full potential.
- Early introduction of complementary foods (before six months) does not result in improved growth. On the contrary, early introduction of complementary foods replaces breast milk and leads to a decrease in caloric intake because breast milk is generally higher in nutritional value than the complementary foods and liquids fed to children in developing countries. In most cases, replacement of breast milk before six months will negatively affect the macro and micronutrient intake of infants.
- Similarly, late introduction of complementary foods results in sub-optimal nutrient intake, infant growth failure, and poor development. Lack of attention to this essential intervention and this critical age period can lead to substantial rates of growth faltering during a period of great vulnerability to poor nutrition.

- In our country, twenty-six per cent of children 0-24 months old are wasted, 38 per cent are underweight, 39 per cent are stunted, and 82 per cent are anaemic. The proportion of stunted children increases nearly threefold between the ages of 6 to 24 months. This is largely attributable to late and sub-optimal complementary foods and feeding practices.
- Currently, only 57 per cent of 6-9 month old infants receive any complementary foods at all, with wide variability across different states. Timely introduction of appropriate complementary foods, therefore, has great potential to improve the quality of children's diets during the early complementary feeding period.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the importance of timely and appropriate complementary feeding for reducing under nutrition, illness, and death among infants and young children. Promote an evidence-based approach to the design of relevant programmes that is based on epidemiological evidence and better practices and consider replication of successful programmes from within and outside of India.
- **Protocols and guidelines:** Review, refine, and promote available evidence-based approaches and tools through updated operational MHFW and MWCD guidelines and protocols to support the timely introduction of complementary foods at six months. Consider introducing special events for infants six months old during Nutrition and Health Days to promote timely introduction of complementary foods, continued breastfeeding, use of safe water for young children, and hygiene practices during feeding. Harmonise communication goals and core messages across ministries and programmes at central, state, and district levels; adapt core messages to the regional and/or local context.
- **Human resource capacity:** Improve the performance of primary level staff in promoting and supporting timely introduction of age-appropriate foods and feeding practices from six months of age, through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Intensify communications efforts to make timely initiation of complementary feeding popular knowledge among communities, service providers in MWCD and MHFW programmes, programme managers and leaders, formal and informal health care providers, politicians, and media. This could include the use of celebrity statements through a coordinated multi-channel communications strategy. Initiate denominator-

based planning and outreach to expand coverage, starting with community-based micro-plans, anchored in good mapping of mothers and children in the community.

- **Supply, logistics and delivery:** Ensure that primary care providers and counsellors have access to high quality communications materials and job aids on supporting timely introduction of complementary foods.
- **Monitoring and quality assurance:** Monitor progress on timely introduction of complementary feeding at national, state, and district levels through surveys that include the indicator *“proportion of infants 6-8.9 months of age who receive solid, semi-solid or soft foods”*. Monitor programme implementation processes through indicators such as *awareness of timely introduction among caregivers and service providers*. Use denominator-based planning and monitoring to improve coverage.
- **Coordination and synergy:** Utilise monthly coordination meetings and other mechanisms, especially at district and block levels, for ensuring convergence. Initiate focus on six month old children at Nutrition and Health Days.

Age-appropriate complementary feeding, adequate in terms of quality, quantity and frequency for children 6-24 months

Summary description

Every child 6-24 months old is fed age-appropriate, energy and nutrient-dense, diverse complementary foods with increased quantities, nutrient density, and frequency as the child increases in age. Child feeding is responsive and active. Children are given prophylactic iron and folic acid supplements to prevent anaemia. Hygienic practices are followed when feeding children.

Why is this intervention essential?

- Children are at the highest risk of nutritional deficiencies and growth faltering between the ages of 6 - 24 months and the prevalence of child malnutrition as measured by wasting (low weight-for-height), stunting (low height-for-age), and underweight (low weight-for-age) is highest in this age group.
- In most cases, children are unable to compensate later in life for poor feeding and growth in early childhood and they grow up to be stunted adults with compromised ability to live and perform to their potential. Stunted girls grow up to become adult women with smaller birth canals, which increases the risk of obstructed labour during child birth. In addition, stunted women are more likely to give birth to low birth weight newborns. The damage of sub-optimal feeding and nutrition in infancy and early childhood is largely irreversible.
- Globally, scientific evidence indicates that the period between 6 - 24 months is also the period when children are most responsive to interventions aimed to improve the quality of complementary foods and feeding practices. New programmatic evidence shows that programmes that provide interventions to improve age-appropriate complementary foods and feeding practices are feasible to implement and can yield substantial nutritional benefits.
- The period between 6 - 24 months of age is the period of greatest growth faltering in children. NFHS-3 shows that the prevalence of stunting increases from 20 per cent when children are younger than six months old to 47 per cent

when children are between 12 - 17 months old and 58 per cent by the time children are 18 - 23 months old.

- Similarly, the period between 6 - 23 months of age is the period of greatest risk for anaemia. NFHS-3 shows that the prevalence of anaemia in children 6-24 months old is 82 per cent while it is 63 per cent among children 24-59 months old.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the importance of good nutrition for children in the vulnerable age window of 6-24 months. Consider use of computer-based modelling of the impact of poor feeding and nutrition in infancy and early childhood to develop a common understanding among all stakeholders of the consequences of poor complementary feeding. Advocate for a social safety net approaches for young children to ensure access to age-appropriate foods and essential nutrients. Promote an evidence based approach to the design of relevant programmes and consider replication of successful programmes from within and outside of India.
- **Protocols and guidelines:** Review, refine, and promote available evidence-based approaches and tools through updated operational MHFW and MWCD guidelines and protocols so that children are fed age-appropriate, energy and nutrient-dense complementary foods, with increased nutrient density, quantity, and frequency as children grow. Conduct qualitative and ethnographic research to document the main opportunities for, and barriers to, improved complementary feeding practices. Use research findings to ensure well-designed programmes grounded in the local context. Harmonise communications guidelines and core messages to promote age-appropriate complementary foods and feeding practices. Adapt guidelines and messages to the state, district, or local contexts.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors in age-appropriate complementary feeding, through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Sensitize all community members to the needs of children under two, including *panchayat* members, women's groups and other local resource groups. Initiate denominator-based planning

and outreach to expand coverage, starting with community-based micro-plans, anchored in good mapping of children in the community. Through Nutrition and Health Days and other community events, build awareness of the importance of age-appropriate complementary feeding and continued breastfeeding until at least 24 months of age. Consider expansion of MHFW and MWCD collaboration with NGOs to achieve this objective.

- **Supply, logistics, and delivery:** Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to support improved complementary feeding practices. Ensure that these materials stress the role of local foods and family recipes in ensuring improved complementary feeding for infants and young children. Strengthen the capacity of local groups that produce complementary foods to ensure adequate supply in quantity, nutritional adequacy, and safety. Introduce the use of point-of-use micronutrient powders and/or fortified complementary foods, where local diets are unable to meet the specific nutrient needs of infants and young children. Ensure timely provision of iron supplements to prevent anaemia where needed.
- **Monitoring and quality assurance:** Include indicators on the quality, quantity, and frequency of complementary feeding in national, state, and district level surveys as well as the MIS of MWCD and MHFW programmes. Key indicators include: *(i) proportion of children 6-23.9 months of age who receive foods from four or more food groups; (ii) proportion of breastfed and non-breastfed children 6-23.9 months of age who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more, and (iii) proportion of children 6-23.9 months of age who receive an iron-rich food or iron-fortified foods specially designed for infants and young children, or fortified in the home.* Use denominator-based monitoring to improve coverage.
- **Coordination and Synergy:** Develop joint operational plans for MWCD and MWCD field personnel. Utilise monthly coordination meetings especially at district and block levels for ensuring convergence. Initiate focus on six month old children at Nutrition and Health Days. Where needed, seek to improve local production of complementary food.

Essential Intervention 5

Safe handling of complementary foods and hygienic complementary feeding practices

Summary description

Every child 6-24 months old is fed using safe handling (preparation and storage) and hygienic feeding practices of complementary foods by – among others - washing caregivers' and children's hands before food preparation and eating, serving foods immediately after preparation, using clean utensils, and avoiding feeding bottles.

Why is this intervention essential?

- Frequent infections such as diarrhoeal diseases and intestinal worm infestations contribute significantly to high prevalence of malnutrition among infants and young children. It is well documented that the peak incidence of diarrhoeal diseases in children happens between 6-12 months of age as the intake of complementary foods increases.
- As the intake of complementary foods increases, so does the risk of food contamination with pathogens. Microbial contamination of complementary foods is a major cause of childhood diarrhoea. Therefore, safe handling of complementary foods is critical for the prevention of gastrointestinal diseases. Safe handling of complementary foods includes serving foods immediately after preparation and storing foods safely.
- Using clean utensils to prepare and serve children's food and using clean cups and bowls when feeding children is also vital to avoid the contamination of complementary foods with pathogens. Feeding bottles are particularly difficult to keep clean, making them an important route in bacterial transmission and they should be avoided.
- Washing caregivers' and children's hands with soap before food preparation and eating is among the most important complementary feeding practices to reduce food contamination and the incidence of diarrhoeal diseases in infants and young children.

- According to NFHS-3, the proportion of children with diarrhoea in the two weeks preceding the survey was 10 per cent among infants 0-6 months old and almost 20 per cent (double) in infants 6-12 months old, indicating the importance of close attention to hygiene practices related to complementary feeding.
- Compliance with these recommendations may be challenging, particularly in environments with limited access to safe water and facilities for safe preparation and storage of food, however, there is evidence that carefully planned educational interventions can result in improved practices and outcomes.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the importance of adequate supply of safe drinking water and sanitation facilities for central, state, and district level programmes, particularly in relation to highly vulnerable communities.
- **Protocols and guidelines:** Update operational guidelines and protocols in programmes including those of the MHFW and Ministry of Rural Development to ensure that primary providers and counsellors build community awareness about safe food handling practices, child feeding, and hand washing practices at all contacts with their client families. Implement guidelines pertaining to the provision of water and sanitation facilities in public spaces such as *Anganwadi* Centres and primary health centres. Harmonise communications guidelines to promote safe handling of complementary foods and hygienic complementary feeding practices. Adapt guidelines and messages to the state, district, or local contexts.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors in safe handling of complementary foods, through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Strengthen communications activities through the MWCD, MHFW, and Total Sanitation Campaign programmes to engage communities on issues related to environmental sanitation, food and water handling, and hand washing, especially those pertaining to child feeding. Through Nutrition and Health Days, *Gram Sabhas*, and other community mechanisms, increase community use of clean drinking water and improved sanitation facilities.

- **Supply, logistics and delivery:** Improve access to safe drinking water and sanitation facilities, especially through engagement with district officials. Increase awareness and demand for better hygiene. Link with the National Rural Employment Guarantee Scheme (NREGS) and Food for Work (FFW) programmes to ensure funds in these programmes are channelled to the development of water and sanitation infrastructure. Explore the use of public-private and social marketing approaches to ensure access to, and use of, soap while hand-washing. Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to support hygienic complementary feeding.
- **Monitoring and quality assurance:** Monitor access to safe drinking water, improved sanitation, and awareness about hygiene practices in child feeding and care through household surveys such as NFHS and District Level Household Survey. Track progress on this essential action with the following two indicators: 1) *proportion of children 0-24 months old living in households with access to safe drinking water*; and 2) *proportion of children 0-24 months old living in households with access to improved sanitation*.
- **Coordination and synergy:** Utilise monthly coordination meetings and other mechanisms, especially at district and block levels, for ensuring convergence. Expand focus on food handling at Nutrition and Health Days. The MHFW and MWCD should coordinate with other sectors and programmes, such as NREGS, to improve access to sanitation and safe water.

Essential Intervention 6

Full immunisation and bi-annual vitamin A supplementation with deworming

Summary description

Every child is protected from vaccine preventable diseases through a full course of immunisation delivered through the routine immunisation system at set times in the child's first year of life. In addition, all children 6-59 months old are further protected from mortality, morbidity, and malnutrition with preventive vitamin A supplementation and deworming twice yearly.

Why is this intervention essential?

- Immunisation protects children against death and disability associated with vaccine preventable diseases.
- In addition to immunisation, regular vitamin A supplementation has been shown to reduce under-five mortality by an average of 23 per cent in regions where vitamin A deficiency is prevalent.
- Intestinal worm infestation in children is associated with a significant loss of micronutrients, particularly iron, and can contribute to iron deficiency, growth retardation, and anaemia.
- According to NFHS-3, only 44 per cent of children 12-23 months old are fully vaccinated (58 per cent in urban areas versus 39 per cent in rural areas) and five per cent of children have not received any vaccine. India is home to the largest pool of non-immunized children in the world.
- Data from the National Nutrition Monitoring Bureau shows that the consumption of vitamin A in the diet is very low with median intakes below 20 per cent among children and adolescents. Vitamin A supplementation can be delivered cost-effectively in combination with routine immunisation and as a part of bi-annual Nutrition and Health Days. Currently less than half the children 6-59 months old have access to this life saving intervention.
- According to NFHS-3, anaemia rates among Indian children are among the highest in the world as 82 per cent of children 6-23 months old are anaemic.

Anaemia in children impairs cognitive development, reduces learning ability, limits future earning potential, and compromises national development and economic growth.

- Children's iron intake needs to be improved through the timely introduction of age-appropriate, iron and micronutrient rich complementary foods (including fortified foods). When needed children should be given prophylactic iron and folic acid supplements to prevent anaemia. Biannual vitamin A supplementation and deworming will increase the absorption of the iron available in the child's diet.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the importance of deworming for children under five years of age and include this cost-effective intervention in national policy frameworks along with immunisation and vitamin A supplementation. Replicate experiences from states that have improved coverage of immunisation, vitamin A supplementation, and deworming.
- **Protocols and guidelines:** Develop and disseminate guidelines for deworming children under five years of age. (The protocols and guidelines for immunisation and vitamin A supplementation are largely in place.) Increase the focus for the three interventions reaching "hard to reach" children (children from poor urban and rural areas, children from socially excluded groups, and children living in remote areas) who currently do not have access to these services. Harmonise communication goals and core messages across ministries and programmes at central, state and district levels; adapt core messages to the regional and/or local contexts. Expand use of village Nutrition and Health Days to reach all children with these services.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors, especially in deworming, through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Initiate denominator-based planning and outreach to expand coverage, starting with community-based micro-plans, anchored in good mapping of children in the community. Expand use of village Nutrition and Health Days to improve delivery, increase coverage, and help build awareness at community level (e.g. women's groups) that immunisation, vitamin A supplementation, and deworming are services to which children

are entitled (to generate demand and improve accountability of the service providers to the communities).

- **Supply logistics and delivery:** Ensure timely access to the commodities needed for the interventions in adequate amounts to ensure the targeted coverage. Consider the use of vitamin A capsules instead of syrup, which is the delivery mechanism of choice in most other countries. Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to promote these services.
- **Monitoring and quality assurance:** Track progress on this essential action with the following three indicators: 1) *proportion of children 12-23 months old fully immunised*; 2) *proportion of children 6-59 months old having received two doses of vitamin A in the previous 12 months*; and 3) *proportion of children 12-59 months having received two deworming tablets in the previous 12 months*. Use denominator-based monitoring to improve coverage.
- **Coordination and synergy:** Utilise monthly coordination meetings and other mechanisms, especially at district and block levels, for ensuring convergence. Expand Nutrition and Health Days to improve coverage of these services.

Frequent, appropriate, and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhoea

Summary description

Every child is fed, actively and frequently, with age-appropriate and nutrient dense foods, during and after illness, while frequent, on-demand breastfeeding continues to increase fluid and nutrient intake. Children with diarrhoea also receive appropriate rehydration therapy including a full course of zinc supplements as per national guidelines for the treatment of diarrhoea.

Why is this intervention essential?

- Nutrition and infection are closely inter-related. Malnutrition is the cause of one-third to one-half of all deaths in children under-five either through direct causation or through increased case-fatality rates in malnourished children affected by diarrhoea, pneumonia, measles, and/or malaria. Especially when not appropriately treated or managed, infections increase the nutrient requirements of the child and - unless compensated with additional food and nutrient intake - they contribute to worsening malnutrition with related increases in mortality.
- It is therefore critical to break the vicious cycle of malnutrition and infection through, among other things, active and frequent feeding (including breastfeeding) during and after illness. Global guidelines recommend prompt treatment of illnesses and continuation of usual feeding in a frequent and active manner during and after illnesses to improve the nutrition status of children.
- Global guidelines for the treatment of diarrhoea also recommend the use of oral rehydration salts with zinc supplementation (for 10-14 days). Zinc supplementation reduces the duration and severity of the diarrhoea episode and lowers the incidence of diarrhoea in the 2-3 months following supplementation. This should be accompanied by breastfeeding, continued complementary feeding for children 6 - 24 months old, and selective use of antibiotics.
- According to NFHS-3, 18 per cent of children under two had fever - a manifestation of infection - in the two weeks preceding the survey and 14 per

cent had diarrhoea. There is also evidence that frequent additional feeding during and after illness is not occurring, since as many as 43 per cent of children 6-23 months old with diarrhoea in the two weeks preceding the survey were offered no food/liquids or less food/liquids than usual.

- Rates of treatment of diarrhoea are also extremely low. According to NFHS-3, only 29 per cent of children 6-23 months old with diarrhoea were treated with ORS made from packets. Despite a favourable policy environment, the use of zinc supplements for the treatment of diarrhoea is virtually nil; yet zinc deficiency is very high - (as evidenced by the high rates of stunting, which is a proxy indicator of zinc deficiency - according to NFHS-3, an estimated 39 per cent children 0-23 months old are stunted).

Opportunities for scaling up this intervention

- **Policy and advocacy:** Promote awareness and implementation of the national policies on ORS and zinc supplementation. Increase the policy focus on improved and active feeding during and after child illness. Promote awareness and build consensus in the scientific community and with other key stakeholders on the importance of infant and young child feeding practices and ORS plus zinc supplementation in reducing mortality.
- **Protocols and guidelines:** Improve the dissemination and implementation of the existing protocols and guidelines. Implement a results-driven, time-bound national plan to reduce child deaths due to diarrhoeal diseases and other infections, clarifying the roles of various stakeholders from government, non-profit, and private sectors. Harmonise communications guidelines to promote frequent, appropriate, and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhoea. Adapt guidelines and messages to the state, district, or local contexts.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors to provide timely and appropriate advice and support on infant and young child feeding and care during and after illness (including oral rehydration with zinc supplementation during diarrhoea), through improved training, communications materials, job aids, motivation, and supportive supervision.
- **Outreach and community ownership:** Strengthen communication efforts to improve the capability of mothers and other caregivers to prevent and treat infections including diarrhoea. Initiate denominator-based planning and outreach to expand coverage, starting with community-based micro-plans,

anchored in good mapping of children in the community. Consider expansion of MHFW and MWCD collaboration with NGOs to achieve this objective.

- **Supply logistics and delivery:** Ensure the timely availability of all commodities and supplies, such as ORS packets, zinc supplements, antibiotics, and communications materials required through all possible delivery channels, both public and private. Particular attention needs to be given to increasing the domestic production capacity for zinc supplements.
- **Monitoring and quality assurance:** Monitor this essential intervention through the following indicators: *1) proportion of children reported to have had an episode of diarrhoea in previous two weeks who took ORS; 2) proportion of children reported to have had an episode of diarrhoea in the previous two weeks who took zinc supplements; and 3) proportion of children reported to have had an episode of diarrhoea in the previous two weeks who were given increased foods and fluids.*
- **Coordination and synergy:** Expand coordination between MHFW (which is responsible for the delivery of zinc supplementation and ORS), MWCD (which is able to raise community awareness of how to treat ill children) and the Department of Biotechnology (which has been working to increase the domestic capacity to produce zinc supplements to meet upcoming demand). Utilise NHDs to improve the focus on active feeding of sick children.

Essential Intervention 8

Timely and quality therapeutic feeding and care for all children with severe acute malnutrition

Summary description

Every child with severe acute malnutrition is provided with therapeutic foods and care in a timely manner, for life-saving rapid weight gain and recovery. Care for children with severe acute malnutrition requires early case detection (before the development of medical complications), optimal therapeutic feeding and care protocols, and access to therapeutic foods, including ready-to-use therapeutic foods.

Why is this intervention essential?

- Malnutrition remains a major killer of children and severe wasting (weight-for-height below minus three standard deviations of the median weight for height in the reference WHO population) is a particularly lethal form of severe acute malnutrition (SAM). Mortality rates in severely wasted children are nine times higher than those in well-nourished children due to direct causation and to the dramatic increase in case fatality in severely wasted children with common illnesses such as diarrhoea, pneumonia, measles, and malaria.
- NFHS-3 shows that 20 per cent of children under five are wasted (weight-for-height below minus two standard deviations). Rates of child wasting in India are twice as high as the average wasting rates in sub-Saharan Africa (9 per cent) and ten times higher than those in Latin America (2 per cent). Yet more worrisome, eight million Indian children are severely wasted. Severe wasting requires an urgent and quality response.
- Care for children with SAM is restricted to facility-based care in a few hospitals and nutrition rehabilitation centres, greatly limiting coverage and impact. To give a sense of the inadequacy between the scale of the problem and the current response, in the State of Bihar, where the number of children with SAM at any point in time is over one million, there are only two nutrition rehabilitation centres that can provide care to about 40 children per month. Currently less

than 0.1 per cent of the children with SAM receive treatment. Care for children with SAM requires a revolutionary national response.

- Global evidence shows that the vast majority of children with SAM can be treated in their communities. Community-based treatment involves 1) active case finding for the timely detection of SAM in the community, 2) early referral of wasted children with medical complications to a centre-based therapeutic programme, 3) the provision of ready-to-use therapeutic foods for children with SAM without medical complications (up to 90 per cent of children with SAM) in the community, and 4) weekly monitoring of weight gain until the affected children recover and can be discharged from the programme.
- Community-based care for children with SAM could avert the deaths of hundreds of thousands of children in the country annually, if implemented on a large scale and properly combined with facility-based care for children with SAM and medical complications.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Increase awareness of leaders and policy makers about the severity of the problem of children with severe acute malnutrition (SAM) - currently more than 8 million at any point in time - and the urgent need for timely access to quality therapeutic feeding and care, including access to an uninterrupted supply of ready-to-use therapeutic foods (RUTF). Develop a national policy that outlines standard, state-of-the-art feeding and care for children with SAM through programmes that combine facility- and community-based therapeutic feeding and care with adequate referral between both. Ensure access to RUTF.
- **Protocols and guidelines:** Update the national guidelines on the treatment of SAM to bring them in line with internationally-agreed upon standards for the integrated management of SAM in children. This should be done on a high priority basis. These guidelines should include: 1) facility- and community-based therapeutic feeding and care, 2) active case finding at the community level for early detection of children with SAM, before the development of medical complications, 3) timely and quality treatment with RUTF, and 4) effective referral between the facility and community components of the programme.
- **Human resource capacity:** Improve the performance of facility- and community-based care providers and counsellors to provide state-of-the-art feeding and care for children with SAM, through improved training, communications

materials, job aids, motivation, and supportive supervision. Specifically, train and support *anganwadi* workers in active screening of children for early detection of children with SAM using mid upper arm circumference (MUAC) and weekly monitoring of children admitted to the community-based therapeutic component of the programme with RUTF. Train and support ANMs to identify children with SAM and medical complications and refer them to the nearest block-level therapeutic care unit where the children's condition will be stabilized before they can be referred to the community-based therapeutic care component of the programme.

- **Outreach and community ownership:** Empower caregivers, families, and communities to identify, feed, and care for children with SAM in their communities through early case detection, simplified protocols, ready-to-use therapeutic foods, and adequate weight gain monitoring until the child's total recovery.
- **Supply logistics and delivery:** Ensure the supply and logistics needed to provide caregivers and communities with timely and sustained access to the commodities needed for the integrated management of SAM, including uninterrupted access to RUTF. Give priority to the indigenous production of ready-to-use therapeutic foods within the research and development budget of the Ministry of Science and Technology. Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to support the management of SAM.
- **Monitoring and quality assurance:** Monitor progress in addressing SAM using the following indicators: 1) proportion of blocks conducting monthly drives for the early detection of children with SAM through village-based MUAC screening; 2) proportion of blocks with an integrated therapeutic programme that provides facility- and community-based therapeutic care to at least 90 per cent of children with SAM; and 3) proportion of children with SAM with access to RUTF. Use denominator-based planning and monitoring to improve coverage.
- **Coordination and synergy:** Actively involve *anganwadi* workers in identifying children with SAM and treating the uncomplicated cases (90 per cent) with RUTF, while referring the complicated cases to the block therapeutic feeding centre. Expand access to block level therapeutic feeding centres within the MHFW system.

Essential Intervention 9

Improved food and nutrient intake for adolescent girls particularly to prevent anaemia

Summary description

Every adolescent girl is protected against nutritional deficiencies and anaemia through dietary counselling, weekly iron and folic acid supplementation, twice yearly (six months apart) deworming prophylaxis, and life-skills development to avoid early marriage and early pregnancy.

Why is this intervention essential?

- Adolescence is a period of intense social, psychological, and physiological change, particularly for girls. Nutritional deficiencies in adolescent girls are common and have far-reaching implications for them as young women, and for their children when they become mothers. Iron deficiency anaemia is one of the main nutritional problems in adolescent girls, as during adolescence their iron requirements increase sharply due to growth and menstruation.
- Anaemic adolescent girls are less likely to enrol in formal education and more likely to have lower school performance rates and higher school absenteeism and drop-out rates. Anaemic adolescent girls also have a higher risk of becoming anaemic adult women, who often have lower pre-pregnancy weight gain, lower pregnancy weight gain, are at a higher risk of death from haemorrhage at delivery, and are more likely to deliver low birth weight newborns, thereby perpetuating the vicious intergenerational cycle of poor nutrition, growth, and development.
- An analysis of studies on intermittent iron supplementation concluded that weekly iron supplementation of adolescent girls is effective in reducing iron deficiency anaemia if delivered under supervision to ensure compliance.
- In our country, ninety per cent of adolescent girls (11–18 years) are anaemic (ICMR 2003). The low content of bio-available iron in the largely vegetarian diet in the country aggravates the problem of anaemia. Iron intake of girls 10-17 years old is estimated to be 46-to 64 per cent of the Recommended

Daily Intakes (NIN, 2002). However, the national programme for the control of anaemia does not include adolescent girls as an eligible group for services.

- Studies confirm that weekly iron and folic acid supplementation of adolescent girls combined with dietary counselling, twice yearly (six months apart) deworming prophylaxis, and life-skills development to avoid early marriage and early pregnancy significantly reduces the prevalence of anaemia.

Opportunities for scaling up this intervention

- **Policy and advocacy:** Develop a national policy that addresses the nutritional needs of adolescent girls, including the control of anaemia through school-based and community-based approaches. (The current policy framework does not provide sufficient guidance to address the special needs of adolescent girls.)
- **Protocols and guidelines:** Develop national guidelines in tandem with the development of a national policy, drawing on experience from the *Kishori Shakti Yojana* programme as well as from other programmes that currently provide iron and folic acid supplements on a weekly basis to over 10 million adolescent girls. Harmonise communications guidelines and adapt guidelines and messages to the state, district, or local contexts.
- **Human resource capacity:** Improve the performance of primary care providers, teachers and counsellors to address the nutritional needs of adolescent girls, through improved training, communications materials, job aids, motivation, and supportive supervision. Focus on the importance of taking iron and folic acid supplements weekly and deworming tablets bi-annually.
- **Outreach and community ownership:** Involve communities in the planning and implementation of efforts to improve the nutrition of adolescent girls, including involving teachers, peer groups, self help groups, and other community groups and resource persons. Strengthen communication for improved behaviours and practices for adolescent girls' nutrition. Provide factual information to families and providers on the benefits of weekly iron and folic acid supplementation, with a particular focus on the benefits of immediate relevance to adolescent girls such as improved performance in studies and sports, and improved well-being and appearance. Stress the need for improved dietary intake as an integral part of the programme and counsel on how to minimize the potential side effects of supplementation and deworming. Strengthen community groups with an emphasis on improving gender equity.

- **Supply logistics and delivery:** Ensure the timely availability of iron and folic acid supplements, deworming tablets, and communication materials for nutritional counselling and their timely delivery through schools for school-going adolescent girls, and through community delivery channels for non-school-going girls (including “peer-to-peer” and “girl-to-girl” approaches), with emphasis on – but not limited to - the *Kishori Shakti Yojana* and ICDS programmes as delivery channels. Ensure that primary care providers, teachers and counsellors have access to high quality communications materials and job aids to support adolescent nutrition.
- **Monitoring and quality assurance:** Monitor progress and performance using the indicators: 1) *proportion of adolescent girls 10-19 years old who have taken an iron and folic acid supplement in the previous week;* 2) *proportion of adolescent girls 10-19 years old who have taken a deworming tablet in the last 6 months;* and 3) *proportion of adolescent girls who have consumed foods rich in bio-available iron in the last 24 hours.*
- **Coordination and synergy:** Promote coordination based on national policies and guidelines on nutrition for adolescent girls, led by MHFW, in collaboration with MWCD and Ministry of Education. Scale up the current *Kishori Shakti Yojana* programme developed and implemented by MWCD to reach more non school going girls.

Essential Intervention 10

Improved food and nutrient intake for adult women, including during pregnancy and lactation

Summary description

Every woman has access to sufficient quality and quantity of food including during pregnancy and lactation. Every pregnant woman and lactating mother takes iron and folic acid supplements daily to reduce maternal anaemia and improve pregnancy and lactation outcomes. Universal regular consumption of salt with adequate levels of iodine (> 15 ppm) is required, especially for pregnant women, in order to prevent foetal brain damage associated with iodine deficiency.

Why is this intervention essential?

- Women's nutrient needs increase during pregnancy and lactation. Meeting these increased nutrient requirements protects maternal health and nutrition and reduces the risk of poor pregnancy and lactation outcomes. Adequate spacing between subsequent reproductive periods (pregnancy followed by lactation) gives a woman's body time to recover and replenish nutrients. Pregnant and lactating women and their partners need to be counselled on child spacing.
- During pregnancy all women need more food, a varied diet, and micronutrient supplements. Energy needs increase in the second and particularly the third trimester of pregnancy. Inadequate weight gain during pregnancy often results in low birth weight for the baby (birth weight below 2.5 kilograms), which increases an infant's risk of mortality, morbidity and growth failure. Pregnant women also require more protein, iodine, iron, folic acid, and other nutrients.
- Lactation places high demands on maternal stores of energy, protein, and other nutrients. These stores need to be established before lactation and replenished once the lactation period finishes. Virtually all mothers, unless extremely malnourished, can produce adequate amounts of breast milk. The energy, protein, and other nutrients in breast milk come from the mother's diet and/or her own body stores. Women who do not get enough energy and nutrients in their diets risk maternal depletion.

- In malnourished populations, micronutrient supplementation and fortification programmes benefiting pregnant women and lactating mothers increase birth weight, and have positive impact on pregnancy and lactation outcomes and subsequent child survival, growth, and development.
- Nationally, 36 per cent of adult women 15-49 years old are underweight (body mass index below 18.5 kg/m²). This prevalence is over 40 per cent among women of socially excluded groups (scheduled castes and scheduled tribes) and over 48 per cent among women in the lowest wealth quintile.
- The prevalence of anaemia is also unacceptably high as 53 per cent of non-pregnant/non-lactating women are anaemic. The prevalence of anaemia increases significantly among pregnant women (59 per cent) and lactating mothers (63 per cent). Only 51 per cent of households have access to salt with adequate levels of iodine (> 15 ppm).

Opportunities for scaling up this intervention

- **Policy and advocacy:** Improve awareness and implementation of nutrition policies, such as the policy that ensures the provision of iron and folic acid supplements to all pregnant women and lactating mothers and the universal iodization of salt. Increase awareness of the evidence that children's nutritional status in infancy and early childhood begins with the mother's nutritional status prior to and during pregnancy.
- **Protocols and guidelines:** Disseminate national protocols and guidelines on iron and folic acid supplementation during pregnancy and lactation. Enforce the legislation on universal salt iodization, with a particular focus on quality control, quality assurance, monitoring, and reporting. Harmonise communication goals and core messages across ministries and programmes at central, state, and district levels.
- **Human resource capacity:** Improve the performance of primary level providers and counsellors to improve the nutrition of women, through improved training, communications materials and job aids, motivation and supportive supervision. Focus on the benefits of improving food and nutrient intake, reducing energy expenditure during pregnancy, taking daily supplements of iron and folic acid during pregnancy, and consuming iodized salt.
- **Outreach and community ownership:** Expand outreach to the broader community through *Gram Sabhas*, *Panchayats*, mothers' committees, self help groups, senior women, and personnel assisting mothers at delivery, in order

to ensure that women have improved access to nutrient rich foods, including during pregnancy and lactation. Involve communities in maternal nutrition improvement programmes, including better use of local foods, micronutrient supplements, and fortified foods (including point-of-use fortification). Strengthen communications programmes and the role of self help groups and other community groups, with an emphasis on gender equity.

- **Supply logistics and delivery:** Improve the timely availability of micronutrient supplements (e.g. iron and folic acid supplements) and iodized salt. Special attention should be given to the quality of iron and folic acid supplements to reduce side-effects, as well as to quality control in the production of iodized salt. Ensure that primary care providers and counsellors have access to high quality communications materials and job aids to improve women's nutrition.
- **Monitoring and quality assurance:** Monitor progress and performance in this essential intervention using these indicators: 1) *proportion of pregnant women who consume at least 100 iron and folic acid supplements;* 2) *proportion of households who consume salt with adequate levels of iodine;* and 3) *proportion of women who have consumed foods rich in bio-available iron in the last 24 hours.*
- **Coordination and synergy:** Promote collaboration and coordination based on national policies and guidelines on nutrition for women, particularly during pregnancy and lactation, led by MHFW (policy, health services and supplies) in collaboration with MWCD (community involvement, and group and individual counselling to women) and Ministry of Industry and Commerce (iodized salt). Utilise monthly coordination meetings and other mechanisms, especially at district and block levels, to improve the focus on women's nutrition. Expand Nutrition and Health Days to include more focus on women's nutrition.

Attachment 1: List of Expert Task Force Members

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7.	G.N.V. Brahnam (Dr) Scientist F and Head of Department- Community Studies	National Institute of Nutrition Jamia Osmania, P.O Hyderabad - 500007
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