



## WASTING PREVENTION A 360° APPROACH

*A paper on Programmatic and Policy Discussion towards holistic approach to prevent wasting*



The Coalition for Food and Nutrition Security

### From the Desk of the Chairman

India has the highest level of public investment in food and nutrition security of any country through its public funded programs and has entrenched the right to food and nutrition in its constitution. Although India has a strong policy and programmatic focus on preventing malnutrition. But higher prevalence and slow improvements in childhood wasting is an indication that either we need to amplify our efforts or we need to position our efforts differently to reduce wasting and other forms of malnutrition in the country. Technical evidence as to what needs to be done are available both globally and within the country but there is a need to align the evidences to implementation. This paper attempts to bring forth the factors contributing to prevention and reduction of wasting that are less explored or requires to be implemented differently. Therefore, the known and established solutions have not been discussed in this paper.

The paper highlights what needs to be done additionally or differently to prevent wasting and why; present evidence that corroborates the need and suggest actions to be taken. This paper would contribute in strengthening our efforts towards addressing malnutrition.

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# 1. BACKGROUND

Children in the age group of 0-6 years constitute around 13% of India's population (source Census 2011) – representing potential resource base. This resource base is eroded by malnutrition - which undermines their survival, health, cumulative learning capacities and adult productivity. Wasting is a critical public health problem. While some progress has been made in the reduction of stunting the prevalence and burden of wasting has barely changed in the last decade. In 2019 globally, 47 million children (6.9%) under the age of five were wasted and 14.3 million with severe wasting. The contributions were mostly from Asia with an estimated 25.2 million from south Asia alone: accounting for over half of the global burden<sup>1,2</sup>. South Asia presents a paradox, the 'South Asia enigma,' a term used to describe the persistence of high levels of child undernutrition despite economic growth in the region. Wasting and severe wasting in India were at 21% and 7.5% in 2015-2016 (NFHS4)<sup>3</sup> and 17.3% and 4.9% respectively in 2018 (CNNS). The NFHS 5 data released for 22 states have shown an increase in wasting and severe wasting – in 12 and 16 of the 22 states<sup>4</sup>.

Wasting is commonly considered an acute condition due to its relatively rapid onset and resolution compared to other manifestations of undernutrition such as stunting, the contributing factors and effects can be long term<sup>5</sup> and it is well known that a child can be chronically wasted too. There is also emerging evidence that wasting is a 'harbinger of stunting', whereby linear growth is impaired by episodes of wasting<sup>6</sup>. Analysis

of pooled cohort<sup>7</sup> from LMIC including South Asia found that concurrent wasting and stunting was most common in South Asia, with peak prevalence in the ages of 12-18 months. Thus, lack of progress in tackling wasting may also affect progress towards the WHA stunting target.<sup>8,9,10,11</sup>

Although there has been a focus on preventing stunting over the past decade, wasting has received less policy and programmatic attention. Unfortunately the focus of programs on wasting has primarily been centered around the immediate causes, concentrated around symptomatic treatment; ignoring underlying causes that are equally important to avert the mortality and morbidity risk due to wasting and also prevent long terms consequences and other forms of malnutrition. Policy and programme solutions to wasting require a combination of nutrition-specific and nutrition-sensitive solutions that address immediate, underlying and basic causes.

This paper attempts to give an overview of the different dimensions of the cause and the effect of wasting and tries to explore the probable reasons and solutions to prevent wasting. In this paper firstly we discuss what needs to be done additionally or differently to prevent wasting and why – the rationale. Therefore, the known and established solutions have not been discussed in this paper. Secondly, present evidence that corroborates the need. Lastly, we discuss, conclude and suggest actions to be taken at the policy level, implementation level and evidence level.

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## **2. Preventing Wasting – what needs to be done and why**

To prevent wasting and all forms of malnutrition, there is a need to, i) improve the nutritional status of adolescents, pre-pregnant and pregnant mothers, ii) focus on effective and exclusive breastfeeding beginning immediately after birth till 6 months of age, iii) start nutrient-dense complementary foods at the completion of 6 months, along with the continuation of effective breastfeeding until at least 2 years of age. (iv) provide immediate health services in illness (v) provide opportunities for stimulation and learning for improved growth and development (vi) system strengthening for regular growth monitoring and promotion to address slow growth velocity, growth stagnation and growth faltering and (vii) clean and safe environment.

Adolescent and maternal undernutrition, low birth weight and growth failure in early infancy can largely contribute to immediate and subsequent burden of wasting, stunting and underweight. However, malnutrition is not considered as a disease unless it reaches worse enough to show up below -2SD and start showing signs and symptoms of micro-macro nutrients deficiencies.

## **3. Promoting Adolescent and maternal Nutrition:**

### ***What is known?***

Maternal, prenatal, and at-birth characteristics are the strongest predictors of growth failure and account for the largest attributable differences in growth in LMICs. Maternal anthropometry (both height and weight) are a key predictor of child growth failure, particularly when growth faltering began at birth<sup>12</sup>. LBW increases

the odds of wasting, severe wasting and concurrent wasting and stunting.<sup>13</sup> Maternal thinness (body mass index <18.5 kg/m<sup>2</sup>) and short stature (height <145 cm) is a predictor of child wasting in India.<sup>14</sup> Children of malnourished women are more likely to face low birth weight, cognitive impairments, wasting, stunting, lower resistance to infections, and a higher risk of disease and death throughout their lives. Family planning can influence the nutritional status of women and children through increasing birth intervals and preventing unintended pregnancy. Evidence on family planning is limited, but studies have shown a higher risk of child malnutrition where mothers had several children or had children born within 24 months of each other.

### ***Where do we stand today?***

Due to its linkages to pregnancy outcomes and child health, understanding of women's nutrition in India is limited to maternal nutrition and despite nutrition being a widespread problem experienced during all life stages in varying degrees, it only comes to the fore when a woman is pregnant. So, while there has been a thrust on provision of Iron Folic Acid (IFA) tablets during pregnancy, ante natal check-ups and decreasing Maternal Mortality Ratio (MMR) by ensuring safe deliveries, similar efforts have not been employed to improve women's nutrition across all life stages and to determinants contributing to maternal undernutrition. Half of all women (53%) and pregnant women (50.4%) in the age group 15-49 years are anemic over 22.9 percent of women (15-49 years) have low BMI contributing to an estimated 18% of infants born with a low birth weight (LBW)<sup>15</sup> they start their life small and vulnerable (NFHS 4<sup>16</sup>). of the 22 states surveyed under NFHS 5, 14 /22 states and 16/22 has reported

increase in anemia during pregnancy and amongst all women (aged 15-49 years) respectively.

### **Key areas of intervention**

The PMMVY, maternity benefit program provides partial wage compensation through conditional cash transfer to pregnant and lactating women to provide conditions for safe delivery and good nutrition and feeding practices. Coupled with the Janani Suraksha Yojana (JSY), beneficiaries are also eligible to receive a cash incentive after institutional delivery.<sup>17</sup> While the PMMVY scheme saw increased positive awareness amongst beneficiaries, the coverage of the program remained limited specifically due to conditional selection of beneficiaries. Pregnant and lactating women over 19 years were deemed eligible for the scheme for their first living child. This has led to the exclusion of teenage mothers and poor women who birth more than one child and largely low birth weight babies who are at high risk for developing acute malnutrition thereby abetting the intergenerational cycle of undernutrition<sup>18</sup>.

Nutrition during adolescence an important milestone in the life cycle and determinant contributing to adult and maternal nutritional status. The CNNS data portrayed a grim picture of adolescent nutritional status with 31% adolescents suffering from Vitamin B12 deficiency and 37% from foliate deficiency. The data also witnessed growing risk of non-communicable diseases among adolescents (10.4% pre diabetic, 4.9% hypertensive) and 16% of adolescents had high serum triglycerides. These can be attributed to the dietary shift towards junk, processed foods that are perceived as convenience foods but are unhealthy and the changing lifestyle with low physical activity. In India, a monthly take home ration

of fortified supplementary food is delivered to pregnant and breastfeeding women alongside health services. However, the evidence on the coverage and effectiveness of the program in improving maternal nutrition and birth weights is absent. The current supplementary nutrition model focuses primarily on calories through high carbohydrates, poor quality proteins and fats high omega 6 and low omega 3.

An important however invisible cause of poor maternal health and nutrition is the psycho- social status of mothers. According to the National Mental Health Survey 2016, 20% of Indian pregnant women and new mothers are depressed<sup>19</sup>. Poor maternal mental health is associated with a range of negative child health indicators such as poor nutrition, stunting, early cessation of breastfeeding, and diarrheal disease.<sup>20,21</sup> Mental health approaches are simple to integrate into ongoing maternal health services and require strengthening of basic health-care systems. A series of community-based interventions have been demonstrated to be useful and effective for women with mental health problems during pregnancy and after childbirth. Integrating mental health in primary care at community-level can be possible now with the advent of Mental Health Care Bill unanimously passed and adapted by Indian Government in 2016.

### **3. Promoting Infant and child nutrition:**

#### ***What is known?***

Poor catch up growth in the first two years of small for gestational age (SGA) babies and growth faltering of appropriate for gestational age (AGA) babies occurs due to ineffective breastfeeding from birth and inadequate complementary foods which

lead to increased prevalence of stunting as child advances in age. The association of IYCF practices with wasting has been reported many times.<sup>22,23,24</sup> A strong correlation exists between sub optimal infant and young child feeding (IYCF) practices with child wasting, severe wasting, and the co-occurrence of wasting and stunting. Children aged 0 to 23 months who were not breastfed within the first hour post-partum, those who were provided pre-lacteal feeds, and those aged 0 to 5 months who were not exclusively and effectively breastfed, were more likely to be wasted. Additionally, in India, not achieving minimum diet diversity and minimum adequate diet were found to be significantly associated with the co-occurrence of stunting and wasting.<sup>25</sup> The multivariate analysis in the Indian study<sup>26</sup> revealed that the risk of SAM was independently associated with 6 factors, of which 4 were related to IYCF practices- practice of bottle feeding, consistency of complementary feeding, deprivation of colostrum and receipt of pre-lacteals at birth.

### ***Where do we stand today?***

According to NFHS 4 data of India, although the institutional delivery was 78.9% and health personnel assisted 81.4% deliveries at birth, initiation of breast feeding within one hour of birth was only 41.6% and exclusive breast feeding at 55%.<sup>27</sup> The c section births are on rise and doctors give formula in such cases for first 3 days that delays the initiation of breastfeeding. The widespread promotion of breast-milk substitutes, introduction of pre-lacteals, bottle-feeding and lack of support for breastfeeding, undermines mother's confidence to breast feed. It gives wrong perception that breastfeeding is unimportant and not worthy of protection. In recent past

exclusive breastfeeding has also been threatened by covid-19, as misguided fears of infection see newborns separated from mothers and formula milk promoted. Also, one of the most important reason for mother to not to breastfeed or stop breastfeeding early is the need to return to work away from their babies. According to NFHS 3 and 4 findings, the percentage of children aged 6-8 months in India that received solid or semi-solid food along with continuation of breast milk declined from 52.6% in 2005 to 42.7% in 2015.<sup>28, 29</sup> The minimum dietary diversity observed in children in age group of 6-8 months (6.8%) and 9-11 months (14.3%) was relatively lower compared to 12-17 months (25%) and 18-23 months (31.8%).<sup>30</sup>

### ***Key Areas of intervention***

Initiation of breastfeeding within an hour and exclusive breastfeeding are conventional indicators used to measure optimal feeding practices under 6 months. However, these indicators do not inform of the effectiveness of breastfeeding or if enough milk transfer had taken place. The first six months of child's life is an opportunity to either make up for growth deficit or build upon a good birth weight. Infants who are born LBW or who are undernourished in the first six months of life can catch up growth in the first 3-4 months if breastfed effectively. The growth catch-up done during this period is more robust and resilient. But this does not happen automatically. Breastfeeding, even if exclusive, can be sub-optimal if the skills of feeding are not appropriate. And most of the times mothers lack the required breastfeeding skills, introduce top feeds in the perception of insufficient breast milk which is not a perception but is true in the context of poor latching. When there is a poor milk transfer from a mother to the baby, there

is a whey protein called Feedback inhibitor of lactation (FIL) in mother's milk which is retained in the breast which reduces the synthesis of milk. This is the natural process to regulate milk production in case if breast doesn't get emptied. In India & everywhere else, breast doesn't get emptied adequately because of poor attachment (latching) and significant amount of milk stays in the breast thereby FIL present in the breast milk reduces milk production. Introduction of top feeds especially in contaminated environment causes frequent diarrhea and leads to malnutrition. Babies fed on top feeds in hygienic environment don't become stunted, but these babies are at risk of developing metabolic syndrome early on, besides other issues of formula feeding. To ensure enough milk transfer it's important to focus on effective breastfeeding. Effective breastfeeding can be ensured following guidelines on mother's breastfeeding position, baby's position against the mother, position of finger's and thumb while holding the breast and finally baby's mouth latching to mother's breast.

Children under two years of age have high nutrient needs and small consumption capacity, and thus, complementary foods, when introduced, need to be nutrient dense, ensure minimum diet diversity, should include animal food that are rich in good quality proteins, fats and key nutrients, such as zinc, iron, Vitamin B12 and calcium and fruits and vegetables (rich source of vitamins, minerals, dietary fiber and antioxidants). Excessive omega 6 oils, Trans fats, free sugars or salt, processed, junk foods, sugar-sweetened beverages with low nutrient value should be avoided as it associated with weight gain, body mass index (BMI) and risk of overweight, obesity, metabolic disorders and NCDs.

In Indian context the complementary foods

and supplementary nutrition provided through ICDS are cereal-pulse combinations the quality of protein is compromised as it has lower DIASS<sup>31,32</sup> value for around 60-70%. This means even with high quantities of protein supplied to the children they are not receiving optimum quality of protein required for promoting their growth. The SNP food products are high in omega 6, refine carbohydrates and added sugars<sup>33</sup>, which can push children towards obesity, metabolic disorders and other NCDs.<sup>34, 35</sup> Considering the large-scale protein energy deficiency among the Indian children, the importance of including optimum quality protein (with ideal amino acid composition), through animal sources (it has high amino acid score/DIASS) milk, eggs, legumes, soya and calories through good fat from nuts and seeds in SNP is crucial. The quality of fat in children's diets is also important: long-chain-polyunsaturated fatty acids – especially omega 3 fatty acids, which are found in animal food especially fish, seafood, nuts, seeds, promote cognitive and motor development in children. The other limitation of the SNP model highlighted that standard quantities of supplementary food is provided across wider age of children irrespective of the fact that the nutrient requirements of older children would be more than the younger ones and therefore older children would need larger quantities on the other hand the smaller children are not able to consume the large quantity of THR provided for their age due to small stomach capacities. Therefore, age appropriate nutrient dense THR needs to be provided. The systematic review<sup>36</sup> identified that prerequisites for success of supplementary feeding included the quality and quantity of the supplement, and reliable supply chain. Supplementation through kitchen / nutri/ homestead gardens improve access to variety of food items and also enhances the bio availability and

absorption of vital nutrients<sup>37,38</sup> and can contribute to improving nutritional quality of complementary food. A homestead food production (HFP) program in India that targeted preschool children and pregnant mother under ICDS, observed decline in percentage of children aged 6-24 months with moderate-to-severe malnutrition (from 41.5% in September of 2011, the incidence of malnutrition reduced to 20.2 % in March, 2013).<sup>39</sup> Mission Poshan 2.0, an integrated nutrition support program, announced in Budget 2021-22 has a special program to support development of Poshan Vatikas at Anganwadi centres to meet dietary diversity gap leveraging traditional knowledge in nutritional practices. Efforts need to be put in to ensure this program is translated into action.

Field experience suggests that a lack of child stimulation and responsive care on part of the family as a primary source of care giving, nurture, and security exacerbate negative impact of risk factors on child's growth and development. Therefore, complementing the optimal child feeding practices opportunities with psycho social stimulation is another strategy to promote child growth and development. Early Childhood Development (ECD) programmes can lead to improved rates of survival, growth and development; and ensure that later education programs are more effective. Well-organized inclusive ECD programmes for young children including structured play sessions bring motor as well as emotional changes, stimulates the child (making recovery faster) and limit delays in development (protecting the child from long lasting negative consequences of malnutrition. Baby Massage, touch as means of communication, influences the stimulation and the regulation of many systems of the body. Mothers should be encouraged and supported to massage the child on a daily

basis and should be taught playful activities for her child; she & her family can be involved in child's care proactively and role of father should be encouraged. Approaches combining centre-based ECD programmes and parenting interventions, including home visiting programmes, may help parents and community health workers to detect developmental delays early, improve children's development, prevent abuse and neglect, and ensure school readiness. Early child development activities also improve maternal mood, in turn responsive parenting and feeding practices at home.

#### **4. Multisectoral approach for prevention of SAM**

##### ***What we know:***

The determinants of malnutrition are multifaceted, ranging from individual health status; to household access to safe, nutritious, and diverse foods; to water, sanitation, and hygiene (WASH); to feeding and caring practices; to family size and birth intervals. Multi-sectoral convergence is necessary to enhance complementarity between sectors interventions, public policy initiatives and private efforts of individuals and households to prevent child undernutrition.

##### ***Where do we stand?***

The causes of child malnutrition in India are diverse. The poor nutritional status of pregnant and lactating women (resulting from both household food insecurity and intra household gender discrimination), caregiver workload, lack of antenatal care, lack of access to primary health services and poor psychosocial care of children, the failure to exclusively and effectively breastfeed, inadequate complementary

diet and inadequate access to water are the most important factors<sup>40</sup>. However, the responses to child malnutrition in India primarily revolve around four very large government programs: Integrated Child Development Services (ICDS), the Targeted Public Distribution System (TPDS), the Mid-day Meals Program (MMS), and the new National Rural Employment Guarantee Act (NREGA). While these programs have been partially successful in addressing food insecurity in India, they have largely failed specifically to address the nutritional needs of women, and particularly pregnant and lactating women. These programs also leave large gaps in addressing improvement of childcare practices and reduction of micronutrient deficiencies as well as good quality macronutrients among young children below the age of three. For a long time nutrition initiatives have been vertical programs, implemented through isolated delivery systems. However, convergence has now been identified as a critical theme in organizational theory and is synonymous to concepts such as integration, collaboration, coordination, and cooperation, which are gaining recognition. Convergence although the core strategy for a multi-dimensional problem like malnutrition is the weakest link of all. The Poshan Abhiyaan call for a joining of forces by converging resources, skill and knowledge and outlines elements of engagement and specific contributions of a wide range of 'line departments' through the Convergent Action Plans (CAPs). However, the development of convergent action plans on ground is still far from reality.

#### ***Key Areas of Intervention:***

There is a greater need of convergence in tribal population as malnutrition in tribal people is not only a health issue. It is a

manifestation (as well as cause) of a gamut of social, economic, culture, political and environmental adverse factors. The food habits and lifestyle patterns of the tribal population differ considerably from the non-tribal and from each other. Problems of poverty are compounded by a lack of sanitation, access to healthcare and frequent ailments leading to rampant under-nutrition. Recent times have also seen a social, economic and cultural transition among the tribal people. Lack of access to forests, loss of livelihoods, migration, acculturation and a growing reliance on the public distribution system have limited dietary diversity. This change has been associated with the introduction of lifestyle diseases leading to a 'double burden of disease. The origins of malnutrition in tribal people are in a complex web of causes. Hence the need for inter-sectoral programmes to tackle the problem of malnutrition. Corrective actions can encompass agriculture, forest policy, animal husbandry and fishing, livelihood programmes, MNREGA, education, transport, connectivity, PDS, ICDS, mid-day meal programme among others<sup>41</sup>. Also the aspirational district program has proved a very successful model of local area development that could serve as a best practice for replication pan India especially as disparities in development status persist for many reasons across regions.

## **5. Systems Strengthening**

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### ***What is known?***

Evidence shows that while programs tend to focus less on the quality of service delivery than on coverage, improvements in quality have significantly higher impact as improvements in coverage. Emerging evidence also indicates that supportive supervision that balances traditional



management activities with providing coaching and problem-solving support to FLW is associated with improvement in FLW performance and impact. 1st line supervisors (and above) in the system currently focus mostly on the top-down administrative part of supervision.

### ***Where do we stand today?***

Expansion and significant increase in utilization of ICDS services reported between 2006 and 2016<sup>42</sup>. It reduced inequity especially among disadvantaged castes and tribes. Despite strides in utilization of nutrition services under ICDS, did not show equivalent gains in reducing high malnutrition rates. Weaknesses in ICDS programme delivery, low coverage, including incorrect weighing and plotting, failure to identify children with growth faltering and lack or limited nutrition counselling, have been reported<sup>43,44,45</sup> and that might explain the programme's lack of impact. Many health workers are reasonably good at weighing and charting, but lack effective nutrition knowledge and communication skills, with the result that advice, if given, comprise brief, standardized directives<sup>46, 47</sup>. The poor performance stems in part from inadequate training: lack of supervision, weak infrastructure - lack of essential supplies, lack of results and an un-supportive health system further demotivate community health workers leading to unsatisfactory growth-monitoring practices.

### ***Key areas of intervention***

The green zone in growth chart used in ICDS starts from mean to -2 SD. This gives a wrong notion to health care workers that all our children should be between 0 to -2 SD which lowers their target weight gain and completely misses mean to +2 SD which falls in normal growth. Growth chart need to

include green zone from +2 SD to -2 SD in green zone and not just 0 to -2 SD if Z score charts are used. Health care workers need to be trained on target weight gain as per WHO growth charts. If baby shows stagnation or growth faltering, immediate action need to be taken rather than waiting for the child's growth fall below -3 SD WFH to be picked up for SAM management. Therefore growth promotion exercise should focus on percentile growth and achieving target weight gain. WHO percentile growth chart is commonly taught to all the pediatricians for monitoring of individual child's growth. These charts shows standard reference growth curve for children between 0 to 5 years of age. Growth stagnation or growth faltering is immediately picked up in these charts and action is taken and same be taught to FLWs. The other major drawback in the implementation of the growth monitoring activities are in the communication with the caregivers, the training of health workers and the lack of follow up. Thus, impact of growth monitoring will be related to coverage, intensity of contact, health worker performance, adequacy of resources, and the ability and motivation of families to follow advice. Good nutrition counselling is paramount for growth promotion and is often performed badly. Effort must be made to improve this, irrespective of growth monitoring. There is a strong need and scope for teaching all mothers the effective techniques of breastfeeding. Education and field demonstration on complementary feeding should be an integral part of the nutritional education program as well as of the training curriculum of health workers. This requires a different training pedagogy and communication strategy.

A study reports that while AWWs are aware of the main principles of IYCF practices, they still lack information on pertinent topics

like signs of correct latching for appropriate breastfeeding or the consistency or variety of complementary foods for feeding a young child 6-8 months who is introduced to semi-solid foods. These frontline workers also lack the skills required for counselling based on findings while conducting growth monitoring (examples: questions for feeding history or discuss causes of growth faltering with mothers)<sup>48</sup>. This reflects that AWW training needs to move beyond a knowledge-based model and focus on strengthening the ability of workers to assess gaps in feeding practices (breastfeeding, complementary feeding ) render personalized counselling to mothers including skills to establish rapport and undertake effective communication. This has been well demonstrated through a field interventions undertaken by a team of paediatrician and nutritionist in Mumbai slums in India.<sup>49</sup> Timely equipping mothers with effective breastfeeding skills that included learning cross cradle hold technique for breastfeeding with 45 points of counselling as well as knowledge of home cooked nutritious recipes for enriching complementary food through counselling and home visits; identifying growth faltering at an early stage and advice for “catch up” growth had significant impact on adoption of desirable feeding practices. The results of interventions showed notable reductions in the prevalence of wasting, underweight and stunting in the cohort between the baseline and end line periods.

Therefore, there is a need to intensify the capacity building efforts to focus on the knowledge and skill enhancement to deliver evidence-based interventions, building softer skills of counselling (including understanding the context of individual mother/family, helping problem-solving, unpacking a behavior into small doable actions & facilitating adoption of desired

practice/action,delivery of services in the context of COVID19 requires changes in the content of messages delivered by FLW as well as in the processes they should follow and FLWs need additional capacity building for that purpose. As one off training do not help, as it is crucial to provide post training supervision to help translate skills into action.

Observations of service delivery processes conducted as part of projects highlight many gaps in counselling content, practices or insufficient distribution of commodities. However, programs often can't act on them for lack of measurement, with very limited data on service delivery quality is available in the system. Therefore, the system needs to prioritize defining and measuring the quality of service delivery– to get insight on which service components and/or messages were delivered?, did the FLW interact with clients in a way conducive to drive behavior change?, were the clients satisfied and more knowledgeable as a result of the interaction?, Were key inputs available?. Service delivery quality measures should serve as the basis for quality improvement action by the system. The core focus should be on service/counselling process observation. Measurement of service delivery (including counselling) quality should at least initially, be conducted through third parties (like development partners,) to enable supervisors to focus on quality improvement through supportive supervision rather than monitoring. Monthly system meetings (health & ICDS) need to review and act on service delivery quality measurement.

Supportive supervision also emerges as a critical area of opportunity to facilitate quality improvement for community-based nutrition services. It would require building a culture of support to FLWs to improve

performance shift from fault-finding approach) and prioritizing supervisors' field visits, training them on how to effectively coach and support FLWs, enabling and measuring such activities, and discussing them in review meetings. To drive impact, supportive supervision should balance management, capacity building and support functions.

Driving C<sup>2</sup>IQ (coverage, continuity across channels, intensity, quality) and convergence at the last mile requires review and use of data at the lowest level in the system to drive programmatic action.. It would require changing convergence action plans (CAP) and review meetings under Poshan Abhiyaan to focus on how to effectively support lower levels in the system, incapacitating supervisors and managers on data use to track progress and facilitative actions, and taking steps to improve data quality. Defining the data platform, across departments, to measure such convergence at the client level (starting with benefits PDS, THR and MDM followed by key services),

Strategic use of data should be:

- Client-centric: Start from what makes services impact full for clients.
- Decision-centric: Drive decision making as close as possible to the client and FLW/provider.
- Bottom-up: Require escalation and solving of support requests from lower echelons.
- Systematic: Ensure structured departmental & CAP review meetings based on data happen systematically.

Strengthening Benefits delivery: Take Home Ration provision: Due to supply

chain leakages, insufficient volumes reach AWCs and identified beneficiaries. Effective implementation of THR improvements requires:

- Privatization and IT-enablement of THR quality control
- Effective THR quality feedback mechanisms to producers
- Support to SHG towards quality improvements

## **6. Community Engagement and Social Behavior Change:**

### *What is known?*

Recent evidence shows it is possible to improve nutrition practices through a comprehensive SBC strategy<sup>50,51</sup>. Evidence shows that significant improvements in MIYCN practices resulted from improving the performance of frontline workers in delivering timely, high-quality counselling and reinforcing interpersonal counselling with mass media campaigns, advocacy and community mobilization. It is recognized that to trigger intent and drive behavior change, sticky, emotional & attractive SBCC content needs to be delivered with C2IQ (coverage, continuity across channels, intensity, quality).

### *Where do we stand today?*

The Jan Andolan under Poshan Abhiyaan has been effective in driving thousands of community mobilization activities to improve nutrition awareness. Over the past couple of years, major progress has been made to create a movement behind nutrition. While such momentum should be maintained, it may be helpful to focus on driving change in select MIYCN behaviours. Community based events (CBE) under Poshan

Abhiyaan has been designed towards enticing community participation for critical milestones in the 1000 days period.

### ***Key areas of intervention***

The objective of community mobilization and engagement strategy and SBC efforts should focus on driving change in specific behaviours through delivery of effective content with C2IQ - reinforcing coverage/intensity and continuity of SBC messages for specific/key behaviour changes across effective (high reach and recall) channels (like home visit, TV, mobile/social media), increasing the use of mass and mobile/social media for behaviour trigger, addressing COVID-19 related fears, misconception and food access issues and measuring outcomes. It's important to have paradigm shift from IEC to C4D [Communication for development (C4D)] focusing on Social behaviour change. Communication for development (C4D), subsumes a wide range of very different tools, methods and channels, interpersonal communication, classical methods, multimedia that enables people to have a say, participate and develop a sense of ownership.

## **7. Conclusion:**

Prevention of early growth failure before age of 6 months is additionally important and should be a high priority because early life growth failure puts children at substantially higher risk of death by age 24 months. Understanding the relationships between child, parental and household characteristics and causes and timing of child growth failure may offer insights into how to improve interventions and which higher risk children might benefit most. Unfortunately, the effectiveness of nutrition specific and nutrition-sensitive activities to prevent wasting lacks robust evidence, and

concerted effort is required to address this gap.

Given many exposures to factors affecting health and development during pregnancy and soon after childbirth, children may not reach their optimum development. Also the nutritional and psychosocial deficiencies interact with each other and therefore the programmes to improve infant stimulation and enhance responsive parenting have a beneficial effect on children's long term health. Child development interventions that start from early pregnancy and include maternal mental health components may have large impacts on child developmental outcomes. These interventions would need to address factors affecting early childhood development and be readily understandable, adapted to the local context, and easy to deliver to the target population. Developing such an integrated intervention requires systematic adaptation strategies to increase participants' adherence to the behavior recommendations. Therefore there is a need to develop an integrated psychosocial stimulation intervention to promote early childhood development that targets both pregnant and lactating mothers. Also explore the feasibility, acceptability, and barriers to implementing this integrated intervention by trained Community Health Workers (CHWs) in a low-resource setting.

Scaling up effective interventions and achieving high coverage especially among the poor is a difficulty faced for all preventive and promotive interventions in child health. Clearly the quality of the service and its proximity are important, but the perceived benefit and hence demand for services are also factors. Medications are more valued than preventive & promotive services such as nutrition counselling<sup>52</sup>. There is only a narrow window of opportunity in early life – the first two years for preventing long term

health and nutrition related consequences and for SAM it is even shorter the first six months of life. Therefore, maximizing coverage of under twos with the full package of interventions (effective breast feeding; immunization; appropriate complementary feeding; treatment of infections, especially diarrhea safe water supply; and sanitation) may be pivotal for improving nutritional status thus, preventing under nutrition.

## **8. Key Recommendations for preventive Actions**

The recommendations are presented as policy recommendations followed by programmatic actions as to how the policy recommendations can be implemented and future research actions if any.

### ***I – For adolescents (Girls and boys)***

1. Advance policy and environmental changes that improve adolescent health and well-being.
  - I. Include Vitamin B12 along with IFA as part of WIFS program.
  - II. The THR and MDM model should shift its focus from calorie dense to nutrient dense. Millets, seeds and pulses should be incorporated in the THR and MDM. Also the THR and MDM should be provided based on the nutritional status of the adolescent and not generalized.
  - III. Changing organizational practices – more opportunities for physical activity and consumption of healthy foods in schools, colleges, hostels. Nutrition education to teachers, principals and staff.
  - IV. Increase vigilance on food sold in schools and in and around the schools, colleges and other educational institutions.
  - V. Enforcing and monitoring of guidelines by IAP<sup>53</sup> on regulating consumption of JUNCS food and guidelines on Junk Food by FSSAI that bans sale and advertising of junk food in and around 50 meters of school premises.
  - VI. Imposing and monitoring implementation of food safety and standards (labelling and display) regulations 2020 that mandates declaration of salt, added sugar, cholesterol, in packaged food labelling and monitoring reduction in trans fats as per the new notification to be not be more than 3% by weight, on and from 1st January, 2021 and not more than 2% by weight, on and from 1<sup>st</sup> January, 2022
  - VII. Regulation of messaging on food and nutrition disseminated through social media and advertisements. Stringent action against companies & public figures providing wrong information and messaging and promoting non nutritional food products especially targeting children and adolescents.
  - VIII. Link sports activity/ physical education classes to nutrition by providing them knowledge and skills for healthier food choices.

## ***II – For pre- pregnant, pregnant and lactating women***

1. Moving from higher coverage to improved efficiency of IFA supplementation.
  - I. Provision of Vitamin B12 along with folic acid. Vitamin B12 works closely with vitamin B9, also called folate, to help make red blood cells and to help iron work better in the body.
  - II. The counselling tools to focus on inclusion of food sources rich in protein, good fats, Vit B 12 along with iron, folate and Vitamin C rich foods.
2. Expanding the scope of maternal health and nutrition service
  - I. A mental health and wellness component should be incorporated as an integral part of maternal health policies, plans and activities. Focus on maternal mental health along with other health and nutrition services. Simple community-based interventions for example, frontline workers including AWW, ASHA and ANM working in sexual and reproductive health services and caring for pregnant women can be trained to recognize signs and symptoms suggestive of maternal post-partum depression or a mental health problem and provide counselling and effective psychological support and other interventions. Referral and a supervisory system will need to be put in place to ensure that appropriate support services on mental health are available.
  - II. Mothers including father's and families should be equipped with information on breastfeeding preferably before the time of the delivery at facilities providing antenatal care, by community health care workers through home visits, mother committees, SHGs etc.
  - III. The THR model for pregnant women should shift its focus from calorie dense to nutrient dense. Inclusion of animal food – egg, milk to improve quality of protein and customizing the THR to include good fats and macronutrients like zinc, iron, folate, B12 etc.
  - IV. Using MUAC (mid upper arm circumference) as a tool for early identification of undernutrition and subsequently addressing it.
3. Acknowledging and prioritizing adolescent mothers and other nutritionally at-risk pregnant and breastfeeding women as a special group Policies, strategies and programs that provide nutrition care and support to pregnant adolescent girls, breastfeeding adolescent mothers and other nutritionally at-risk pregnant and breastfeeding women. This includes supporting counselling and nutrition services for adolescent mothers and other nutritionally at-risk women, including adherence to recommended micronutrient supplementation protocols and the use of nutrient dense – good quality protein and good fat.
4. Regulation of maternity protection and benefit policies and schemes:
  - I. Support breastfeeding in the workplace; strengthening the enforcement of national legislation on the International Code of Marketing of Breast-milk Substitutes.

- II. Create grievance redressal mechanism for reporting noncompliance or irregularities and quick action to resolve them.

### **III – For children below 6 months**

1. Strategic shift from exclusive to effective breastfeeding
  - I. Capacity building of staff at delivery points on breast crawl for early initiation of breastfeeding in the golden hour.
  - II. Prioritizing capacity building of all health care and ICDS workers including health managers, supervisors, medical officers, staff nurses and frontline workers (AAA) on latching, effective breastfeeding techniques like on cross cradle hold with 45 point of counseling which has shown promising results. It is imperative to teach them the breastfeeding factors for not gaining weight & their solutions. The community health workers/FLWs (AAA) should also be taught to monitor the target weight gain as per WHO growth chart, to identify slow or reduction in growth velocity and pick up early defaulters & growth stagnation. There should be a strong convergence between AAA when taking care of the baby under 6 months of age. If baby is growth faltering then all 3 field functionaries need to take an action collectively to rescue this baby. Eventually, Medical officer should be consulted if baby does not have adequate weight gain in last 2 consecutive weight checks.
  - III. Every AWC and health facility should have a wall chart as well as flip charts showing points of breastfeeding counselling.
  - IV. Including plotting WHO Weight for Age percentile growth charts by FHWs for first 6 months.
  - V. Points on effective latching should be included in the Mother and Child Protection Card (MCP) card to help ASHA monitor latching during home visit.
  - VI. Home visits under HBNC should focus on every 48 hours latch check/weight gain check till baby gains at least 30-35 grams/day in the first 1-2 weeks, after that as per HBNC protocol visit. If 2 consecutive visits shows less than 30 grams/day weight gain in first 5 weeks then this baby needs referral. This will help to pick up early growth falters.
  - VII. During home visits and at each contact for the first 2 months of delivery ascertain using modified WHO Breastfeeding Assessment Tools that mothers are following the correct breastfeeding techniques and provide hand holding support to mothers for effective breastfeeding.
2. Positively incentivising effective breast feeding.
  - I. Effective breastfeeding needs to be linked to growth monitoring. An action protocol needs to be developed to prompt immediate action by the AWW in case of no weight gain or stagnant weight of the baby.

- II. The incentive of ASHA for home visits under HBNC can be linked to weight gain of the baby at each visit instead of services delivered. Offices, restaurants, malls, and railway stations creating spaces for women for breastfeeding must
- III. Action for academia/ research priority:
  - i. Study the impact of interventions for managing growth failure among infants less than 6 months of age on the risk of wasting between 6-24 months.
  - ii. Obstetricians and pediatricians should be trained on breast crawl, effective breastfeeding positioning and latching skills both for normal and C-section deliveries.
- 3. Institutionalize promotion of early child development activities

During home visits under HBNC/HBYC the ASHA and AWW must be trained to watch and encourage parents to do, responsive care from birth, by supporting them to play and talk with their child, recognize and respond to their interests and needs, encourage early learning, provide a safe place for the child to explore beginning at birth for ECD

#### ***IV – For children 6-36 months***

- 1. Expanding the focus from counselling to skill development to protect, promote age-appropriate complementary foods and feeding practices in the first two years of life
  - I. Suggestive list of foods from all food groups to be included in the complementary feeding section of Mother and Child Protection Card (MCP) Card to promote diet diversity.
  - II. Promote home based food to food fortification of complementary foods. Cooking demonstrations by FHWs of nutrient dense recipes and dry food based nutrient powders which can be incorporated in home diet need special attention for ensuring continued growth after 6 months of age.
  - III. Focus on weight checks every 2 weeks between 6-8 months of age when mother is introducing home cooked food to babies. This will help in establishing correct child feeding practices and prevent growth faltering during this crucial period.
  - IV. During home visits under HBYC watch, train and encourage parents for responsive feeding.
  - V. Invest in upgrading the knowledge and skills of community-based workers and staff of health facilities on appropriate care and feeding techniques to improve counselling skills and effectively support the care givers for preventing growth faltering and ensuring catch-up growth.
- 2. Widening the scope of child health & nutrition programs to include early child development at family level
  - I. The home visits by ASHA under HBYC and AWW should be leveraged to supporting parents to play and talk with their child, recognize and respond to their interests and



needs, encourage early learning, provide a safe place for the child to explore.

- II. Families' capacities should be built on identifying developmental delays and early signs of undernutrition. Families can be trained to use simplified MUAC tapes for monitoring the nutritional status of the child and early referral to seek care in case of signs of acute malnutrition in the child.
3. Revamping the food models for supplementary nutrition
    - I. Consider an approach to design an age specific food models for the beneficiaries to meet the age appropriate nutrient requirement.
    - II. Shift the focus from calorie dense to nutrient dense food products
    - III. Improve the quality of protein provided through THR required for growth and development.
    - IV. Include good quality fats for correct ratio of omega 3 and 6 to provide essential fatty acids required for brain development.
    - V. The existing THR products have added sugar in the form of sugar or jaggery, which provides only empty calories and hardly meet the requirements for most growth and functional micronutrients. The larger proportion of energy should be contributed through good quality fats, followed by protein and not sugar Therefore, appropriate strategies need to be considered to reduce the calorie content and improve the micronutrient status of the beneficiaries.
  4. Policy towards providing free crèche facilities at working places with 20% female staff in both public and private sectors.

#### ***V – Recommendations for all age groups under 5 (0-59 months)***

1. Introduce percentile growth chart for monitoring of an individual baby. Percentile growth chart by WHO for individual monitoring must be introduced for children 0- 59 months along with weight for age and height/length for age growth charts. The ASHA and AWWs need to be trained on monitoring the child on percentile growth chart to monitor the growth of individual child and understanding of target weight gain and accordingly take action in case of faltering.
2. Strategic focus on growth promotion, expanding Growth Monitoring to growth monitoring and promotion (GMP) –
  - I. In order to achieve optimal growth, the GMP activities should focus on (i) developing FHWs skills on anthropometric measurement and refreshing the skills at regular intervals (ii) Basic training of AWWs and ANMs needs to be strengthened with the necessary knowledge and communication skills (iii) intense and regular follow ups of cases to pick cases of slow growth velocity and growth faltering ; (iv) Maintenance and accuracy of weighing scales should be monitored regularly; (v) Strengthening of the communication aspect between health workers and mothers for GMP activities; and (vi) The community needs to be motivated and involved in GMP activities (vii)

strict plotting of WHO growth chart, both weight for age as well as length/height for age (Viii) Develop action protocol suggesting clear actions to be taken in case of inadequate weight gain and child's growth plateaus or falters.

- II. Explore using growth monitoring sessions additionally for community mobilization to address underlying socio-economic and other causes of poor nutrition and health.

### **3. Track every child**

- I. A unified technology based system (common for both health and ICDS) integrated into the national HMIS to track every child, to ensure services (health, nutrition, responsive care, security and safety, opportunities for early learning) converge at individual child level.
- II. Technology aided tracking system, AI based application can be created to pick up early growth stagnation and faltering but also guide field workers what action needs to be taken at her level

## ***VI – Recommendations that are cross cutting for wasting prevention***

1. Concentrate on context-specific nutrition programming that is informed by a nutrition causal analysis, improving the sub-optimal coverage of pertinent ongoing interventions and ensure equitable access for the most vulnerable segments of society.
2. Making convergence and effective governance under Poshan Abhiyaan for nutrition sensitive interventions a reality:
  - I. Build capacity and strengthen local governance structures and increase their involvement in community mobilization and monitoring the services
3. Stringent policy and regulations towards creating healthy food environments
  - I. Improve the availability and affordability of nutritious foods like millets, vegetables, seeds etc through provision under supplementary nutrition program (SNP) as take home ration (THR), hot cooked meal (HCM) and ready to eat foods.
  - II. Supply of fortified foods, millets, seeds through PDS.
4. Effective implementation of social protection policy and achieving Food & nutrition security
  - I. Align nutrition and social protection policies, strategies and programs to leverage social protection systems to more effectively contribute to nutrition results for vulnerable adolescent girls and women
  - II. Strengthen food value chains that aim to increase the accessibility and affordability of sustainable healthy diets for women of reproductive age (minimum diet diversity with an emphasis on animal source foods, pulses, seeds fruits and vegetables and fortified foods as needed)
  - III. Focus on improving access to and consumption of quality THR by beneficiaries (esp.

pregnant & lactating women, young children 6-36 months). Five imperatives should drive THR system improvements:

- a. Identifying full beneficiary populations, including migrant families
  - b. Specifying THR content addressing unmet nutrition needs, reducing sugar & improving proteins and micronutrients content
  - c. Enforcing & supporting improvements in THR quality at the production and delivery site
  - d. Ensuring consistent distribution at the last mile
  - e. Driving beneficiary awareness, demand and consumption
- IV. Improve the design of PDS and other food assistance programs on the basis of the specific nutritional needs of adolescents, pregnant and breastfeeding women and girls.
  - V. Promoting nutri - gardens as an option of improving diet diversity and beyond. The families and SHGs need to be encouraged to establish nutri gardens and consuming the produce for improving diet diversity and a livelihood opportunity. The SHGs can be trained on food processing techniques and encouraged to use the surplus produce to prepare nutritious products.
  - VI. Support SHGs through NRLM/SRLM to diversify in producing nutritious ready to cook and ready to eat foods and linking them to ICDS and market.
  - VII. Integrate WASH in all health and nutrition programs and Increase the implementation of joint nutrition and WASH programs and increase the coverage of hand washing facilities, WASH services (safe water and sanitation) and open defecation free (ODF). Monitor the clusters of high diarrhea incidence and its seasonality using the HMIS data
5. Reform education system to strongly position public health nutrition.
    - I. Include maternal, child and adult nutrition skill learning as part of the medical, nursing and public health curriculum
    - II. University Grants Commission (UGC) to consider introducing MIYCN as one of the ability enhancement courses as part of undergraduate curriculum for all science and allied streams
    - III. Thrust to nutrition as a career by providing better opportunities to learn and practice nutrition. Also update and make the curriculum more intense and link it with medicine.
  6. Develop a communication campaign towards safe motherhood, effective breastfeeding, effective complimentary feeding
    - I. Wider dissemination of Infant Milk Substitutes, Feeding Bottles and Infant Foods Regulation of Production, Supply and Distribution Act.

- II. A clearly written breastfeeding policy should be routinely communicated to staff and parents in the facilities providing maternity and newborn services.
  - III. Showcase self-learning tutorials on safe motherhood, effective breastfeeding and complimentary feeding at dedicated spaces created for breastfeeding, maternity wards, Nutritional rehabilitation centres, and railway stations. CTARA, IIT Bombay has developed Health Spoken Tutorial Videos on key health and nutrition issues in many languages that could be used.
  - IV. Use of community radio, digital platforms for disseminating key messages on MIYCN.
7. Policies and programs encouraging testing innovations and use of technology for improving maternal and child nutrition programing and outcomes.
- I. Integrate maternal and child nutrition data into the data system of National Digital Health Mission
  - II. Create a new ID system a QR code for each child so that the data from both ministries health and WCD get recorded in the QR code. This will avoid discrepancies in data received from different sources.
  - III. Strong IT based training of the field workers and communication of instructions through local language
  - IV. Hand holding of field workers post training on root cause analysis and solution of growth faltering in babies under 6 months using software
  - V. Technology based MIS system for real time data reporting, monitoring and evaluation
  - VI. Use of AI based tools for growth monitoring.

**8. Action for academia/ research priority :**

- I. Although there is some existing knowledge around risk factors for wasting in terms of their commonality with stunting, this area is widely viewed as requiring further exploration. This includes understanding the drivers behind wasting in different contexts, as well as the differences in age of onset and how the condition progresses (including from moderate to severe wasting and self-recovery).
- II. Since the maximum wasting occurs in babies between 0 to 2 months of age, we need robust studies on milk transfer and its relation to weight gain. Also, difference in weight gain while using different holds/positions so that knowledge can be transmitted in the field.
- III. There are hardly any studies on complementary feeding in India and we need good evidence to understand what kind of diet from natural resources which helps with growth in young children.
- IV. Defining priority areas for investment in research on how drivers and approaches to wasting prevention can be improved through well-designed program monitoring and

evaluation also needs to be prioritized.

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