

## Review Article

### Infant & Young Child Feeding and Issues

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**Abstract:** The article is related to Annaprasan as per the Vedas (Sacred Texts) of ancient India [15]. This activity is technically called Infant & Young Child Feeding (IYCF) in public health & Complementary Feeding (CF) in terms of the science of nutrition [2-4]. The 0-1 year age group is called technically an Infant. The 1-2 year age group is called as Young Child (YC) [2]. All these interventions are critical as these interventions reduce mortality. Further, it not only reduces mortality but is also cost effective. When we breakdown the stage of infant, the first stage of IYCF is from 6-8 months age group as the IYCF should be introduced to the child latest by the age of 8 months. It is called Complementary Feeding (CF) as it completes the nutritional needs of the infant & young child along with breast feeding [2-23]. The second stage is from 9 months to 24 months where along with breast feeding, the frequency & diversity of the complementary foods is critical [4]. In all, the article deals with 527 days or the period from 6 months of age to 2 years of age. Here the feeding includes Breast Feeding (BF) from 6 months of age onwards along with Semi Solid Foods (SSF) to 24 months of age [2-4]. The article discusses the history & evaluation of the IYCF concept, its current situation, challenges & priorities related to IYCF. Finally, it sees the role of IYCF in this stage & how the effective roll out of the concept through the public health system can optimize the benefit to the child. This is the base of the nation's future & the 527 days of independent life is a critical stage to set the stage for nutrition for an entire life span of at least 7 decades. Addressing these issues through effective IYCF rollout will reduce under nutrition & over nutrition in the later years of the child [2-16].

**Keyword:** IYCF, NFHS, CNNS, RSOC, MASLD.

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## INTRODUCTION

The concept of IYCF is best understood through the indicators of large scale health surveys like National Family Health Survey (NFHS), Comprehensive National Nutrition Survey (CNNS) & Rapid Survey on Children (RSOC) at the national level. The indicators related to

IYCF are more reliable as the recall method relies on the 24 hour recall method [2-23].

Pediatricians advise that till one year of age the child should not be given salt & sugar till 2 years of age. Sugar turns into fat in liver & can affect kids. This condition is known as Metabolic Dysfunction Associated Steatotic Liver Disease (MASLD) [1-13].

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## LITERATURE REVIEW

In this section, the details of the indicators of IYCF from three large scale surveys at the national level are given in detail. The earliest survey is the RSOC that was done by the ministry of Women & Child Development in 2013-2014. Following that, the CNNS

was done in 2016-18 by the Ministry of Health & Family Welfare (MOHFW). The most recent survey is the NFHS done in 2019-2021 by the MOHFW. The indicators from each of the surveys are given in three tables. The performances of the indicators are explained at the end of each of the table [2-5].

**Table 1: IYCF indicators from RSOC, 2013-2014 [5]**

IYCF indicators	Performance of the indicators in percentage
Children aged 6-8 months who were fed complementary foods	50.5
Breastfed children 6-23 months who were fed a minimum number of times (at least twice a day for breastfed infants 6-8 months old & thrice a day for breastfed children 9-23 months old)	36.3
Breastfed children 6-23 months who had a minimum dietary diversity (minimum dietary diversity refers to 4 or more food groups to children age 6-23 months)	19.9

**Table 2: IYCF indicators from CNNS, 2016-2018 [2-23]**

IYCF indicators	Performance of the indicators in percentage
Breastfed within one hour of birth (0-23 months)	56.6
Exclusively Breast Fed (0-6 months)	58
Initiation of Complementary Feeding (6-8 months)	53.1
Continued Breast Fed at age 1 year (12-15 months)	82.5

**Table 3: NFHS 4 & NFHS 5 indicators related to IYCF or 180-730 days of independent life in India [3]**

Survey	Indicators in percentage	Urban	Rural	Total
NFHS5	Children age 6 to 8 months receiving solid or semisolid food & breast milk	52.0	43.9	45.9 (NFHS 4- 42.7)
NFHS 5	Breastfeeding children age 6-23 months receiving an adequate diet	11.8	10.8	11.1 (NFHS 4-8.7)
NFHS 5	Non breastfeeding children age 6-23 months receiving an adequate diet	14.2	12.0	12.7 (NFHS 4- 14.3)
NFHS 5	Total children age 6-23 months receiving an adequate diet	12.3	11.0	11.3 (NFHS 4- 9.6)

### Moving Ahead

Given below is the example of a diet plan of IYCF for a child. A diet chart for a complete week is given while taking into consideration the socio-economic status of families. Some families might find it difficult economically but it is a time that the family & the child would not get again in the life of the child. Adhering to the plan will help the child in his/her entire life period [3].

The basic premise of the diet plan is that every 24 hours, the diet should include one calorie rich dense food through a cereal, one green vegetable, one green leafy vegetable, healthy fats, protein & fruits. Dairy products are also included as source of protein [3-6].

Suggested Diet Chart of a 6 month to 24 months old Indian child (vegetarian diet) [6-17].

#### Monday

Breakfast- two to three teaspoons of boiled chhole (Chick Peas) that are mashed add a little salt and lemon. Lunch and dinner- Half fist from a mixture of one kilogram Usna rice (Brown/Parboiled Rice) and 500 grams arhar dal (Pigeon Pea) + few pieces of Pumpkin+

Ghee (Clarified Butter)+Jaggery Evening snack- Riped banana (1/4<sup>th</sup>) that are mashed.

#### Tuesday

Breakfast- two to three teaspoons of boiled matar (peas) that are mashed Lunch and dinner- half fist from a mixture of one kilogram dalia (broken wheat) and half kilogram chana dal (horse gram)+ few pieces of bottle gourd+ ghee(clarified butter)+misri (palm or coconut sugar) Evening snack- Mashed apple or guava/ seasonal fruit

#### Wednesday

Breakfast- Boiled ghooghuni (boiled peas with spices) Lunch and dinner- half fist from a mixture of one kilogram sago dana (tapioca balls) and 500 grams of moong dal (green gram)+ few pieces of janhi (ridge & smooth gourd)+ghee(clarified butter)+imli(tamarind) Evening snack- Mashed guava or seasonal fruit

#### Thursday

- Breakfast- Mashed panner (cottage cheese) with jaggery/salt
- Lunch and dinner- half fist from a mixture of one kilogram oats and 500 grams of masoor

dal(lentil)+few pieces of raw banana+ghee(clarified butter)+lemon

- Evening snack- mashed chuda/poha(bitten rice) with dahi(curd)+jaggery

#### Friday

- Breakfast- 1/4<sup>th</sup> glass of butter milk
- Lunch and dinner-Jau ki sattu(roasted millet powder)+jaggery prepared in semisolid consistency
- Evening snack- mashed meat of coconut

#### Saturday

- Breakfast- 1/4<sup>th</sup> glass of coconut water
- Lunch and dinner- Chana ki sattu(roasted gram flour)+jaggery
- Evening snack-mashed potatoes with salt

#### Sunday

- Breakfast- mashed mudhi(puffed rice)+milk
- Lunch and dinner- half a roti(flat bread) soaked in a mixture prepared with udad (biri) dal (black gram) with kundru(round gourd).
- Evening snack- dahi(curd) +jaggery

#### Note

Please rotate rotis(flat bread) where you prepare rotis from flours of jau, jowar, ragi, kuttu, bajra, kudo, kumdo (types of millets), ramdana(amaranth seeds) and singada(water chestnut flour) [16-20].

Similarly rotate pulses, green vegetables and green leafy vegetables like palak(spinach), khada sag(amaranth), soya(green tops of soyabean), methi(green tops of foeniculum vulgare), muli(radish), makhan(green leaves of pumpkin), leutia(green leafy vegetable), moonga sags(green leaves of Moringa) etc [22, 23].

The basic premise on which the example is based is addressing variety in the composition of the diet. The variety is extended to cereals, pulses, green leafy vegetables, green vegetables & fruits [10-2].

## CONCLUSION

The IYCF approach is the base of the full diet of the children. The process graduates to a full diet gradually where the child learns to not only suck the food but also bite & chew the food. This is the journey from semisolid to solid food. Not only that, it is the time for weaning of the child. The breast milk needs to gradually stop & should be replaced by complete diet [2-4].

The article aspires that the front line workers galvanize the message at house hold level. Following this, it is aspired that the house hold level will focus on homemade complementary foods & not on commercial foods. The Infant & Milk Substitutes Act, 1992 as amended in 2003 needs to be reinforced [24].

## Limitation of the Article

The current article is just a reflection in the field of nutritional therapeutics in public health. The current article is basically a descriptive chapter where the emerging issue related to nutrition in early life is addressed through IYCF approach. Hence, the article only reiterates the nutrition related protocol that aims to make nutritional interventions to be easily adopted at all levels.

## Declaration

The authors declare that there was no funding received for this chapter. Professor Shankar Das, a co-author of this article was the Ph.D. guide of the lead author of this chapter at Tata Institute of Social Sciences, Mumbai. The lead author thanks all the co-authors for their input in the article. The lead author declares that the sections are only suggestive & reflective in nature.

**Conflict of Interest:** There is no conflict of interest regarding this chapter.

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## REFERENCES

1. Nagral, Hepaticon, 2024, Sugar turns into fat in liver, can affect kids as young as 9, TNN, Times Special, Times Nation, TOI, Lucknow Edition, Sunday, Page 11, April 28, 2024.
2. GOI, MOHFW, Infant & Young Child Feeding Guidelines, <https://www.nhm.gov.in>
3. GOI, MOHFW, IIPS, NFHS 5 fact for India, 2021.
4. GOI, Mother's Absolute Affection (MAA) program, [http://nhp.gov.in>maa\(mother's-absolut-affection\)](http://nhp.gov.in>maa(mother's-absolut-affection)
5. GOI, WCD, RSOC, India Fact Sheet, 2023-2014.
6. Ghosh Shanti, Nutrition & Child Care, A Practical Guide, Jaypee Brothers Medical Publishers Private Limited, 2<sup>nd</sup> Edition, January 1<sup>st</sup>, 2007, ISBN: 978-8180612077.
7. Davidson, Principles & Practice of Medicine, ELBS 16<sup>th</sup> Edition, Longman Group (FE) Limited, ISBN- 0-443-04482-1. 24<sup>th</sup> edition, 2023, Elsevier Limited, ISBN: 978-0-7020-8348-8. & Davidson, Principles & Practice of Medicine, ELBS 16<sup>th</sup> Edition, Longman Group (FE) Limited, ISBN- 0-443-04482-1.
8. Tontisirin K, Faculty of Public health, Department of Nutrition, Mahidol University, Bangkok, Thailand, June, 2009.
9. GOI, MOHFW, India Newborn Action Plan, 2014, New Delhi
10. Gopalan, C. (1944). Nutritive Value of Indian Foods, NIN, ICMR, Reprint Edition, 1994.
11. Park, J. E., & Park, K. Text book of preventive & social medicine, 11<sup>th</sup> edition, 1987, M/s Banarasi Bhanot publishers, Jabalpur.
12. Singh, M., & Saini, S. Conceptual Review of Preventive & Social Medicine, second edition 2019-2020, CBS publishers & distributors Pvt Ltd, ISBN- 978-93-88725-84-2.

13. Tortora GJ: Sandra RJ, Principles of Anatomy & Physiology, 7<sup>th</sup> Edition, Harper Collins College Publishers, 1992, ISBN:0-06-046702.
14. Reddy, N. (2023). Exclusive breast feeding practices & its determinants in Indian infants: findings from the National Family Health Surveys 4 & 5, *International Breastfeeding Journal*, 18, 69.
15. Ayurvedic Clinic, 6 essential tastes in Ayurveda, <https://www.theayurvedicclinic.com/6-essential-tastes-i>
16. ICDS, WCD Ministry, <http://icds-wcd.nic.in>
17. GOI, PIB, Action plan against Pneumonia & Diarrhea, 24<sup>th</sup> February 2015.
18. Sankar, M. J., Neogi, S. B., Sharma, J., Chauhan, M., Srivastava, R., Prabhakar, P. K., ... & Paul, V. K. (2016). State of newborn health in India. *Journal of perinatology*, 36(3), S3-S8.
19. Sankar, M. J., Natarajan, C. K., Das, R. R., Agarwal, R., Chandrasekaran, A., & Paul, V. K. (2016). When do newborns die? A systematic review of timing of overall and cause-specific neonatal deaths in developing countries. *Journal of perinatology*, 36(1), S1-S11.
20. GOI, SRS, Ministry of Home, Statistical Report, 2020.
21. GOI, Ministry of Home Affairs, RGI, Census of India, 2011
22. Niuguna, R. G. (2020). Cost & cost effective analysis of treatment for child under nutrition in LMIC: a systematic review, version 2, *Wellcome Open Research*, 5, 62.
23. GOI, MOHFW, UNICEF, Population Council, CNNS National Report, New Delhi, 2019.
24. GOI, IMS Act, 2003, IMS-act.pdf.

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