Side effects linked with IFA supplementation and system for its management

Side effects- According to WHO any unintended harmless but expected effect related to its pharmacological property without no deliberate overdose. Side effects known are, epigastric discomfort, dark stools, metallic taste. These effects gradually reduce when IFA is taken regularly and on full stomach. Side effects of IFA is not universal, not frequent and is not a serious adverse event.

Do's and Don'ts of IFA tablet

Do's	Don'ts
Take single tablet at a time	Don't chew the table
Swallow the tablet	Don't crush or break
Take the tablet in full stomach	Don't take on empty stomach
Take one glass of water after having the tablet	Don't take with milk

MANAGEMENT OF SEVERE AND ACUTE MALNUTRITION (SAM)

Severe Acute Malnutrition is both a medical and social disorder which is directly or indirectly responsible for 35 % of U5 mortality. 13 million children under age 5 years have SAM, and the disorder is associated with 1 million to 2 million preventable child deaths each year (The Lancet 2006). A SAM child is at 9 times risk to death in comparison of a normal child.

A child is SAM if

- Weight for height is below -3SD
- MUAC is less than 11.5 cm in case of 6m-5yrs
- Visible severe wasting
- Presence of bipedal pitting oedema

The factors responsible for SAM are lack of exclusive breast feeding, late introduction of complementary food, feeding diluted feeds containing less amount of nutrients, repeated enteric and respiratory tract infections, ignorance.

Measuring Weight: The weight of the child should be taken once daily and at the same time each day and it should be taken one hour before or after feed. It is recommended to weigh the child in a digital weighing machine with 10 gm accuracy and with tarred weighing.

Measuring Length: The length of a child is taken in infantometer and height is measured in stadiometer. For child less than 2yrs or less than 87 cm recumbent length is taken and for child more than 2 yrs or more than 87 cm height is taken. For a child less than 2 yrs if length cannot be taken then height can be taken and 0.7 is added to it to convert it to length. If a child above two years and is not able to stand then length of the child can be taken and 0.7 is subtracted from it to convert it to height.

SAM is associated with medical complication like Oedema, Persistent vomiting, Very weak, apathetic, Fever (auxiliary temperature > 38.5 degree Celsius), Children with fast breathing/chest in drawing/cyanosis, extensive skin lesions, eye lesions, post-measles states, diarrhoea with dehydration based on history and clinical signs, severe anemia, hypothermia, Any other general sign which the clinician thinks warrants transfer to in patient facility for assessment or care should be admitted to NRC. SAM without medical complications can be managed at the community.

Management of SAM at NRC

10 steps for management of SAM child include:

1. Hypoglycemia: Pre anticipating the child is hypoglycemic; this drink is given to the child coming to the NRC. In this state the blood sugar level is less than 54 mg/dl. It is detected by glucometer. If child is alert give 50 ml bolus of 10% glucose. If lethargic, unconscious, give 5 ml/Kg body weight of sterile 10% glucose by IV, followed by 50 ml of 10% glucose or sucrose by NG tube. Different signs of hypoglycemia are lethargic, loss of consciousness.
2. Hypothermia: When the auxiliary temperature is less than 35 C we can say the child is hypothermic. Kangaroo mother care, mummy rapping method, warmer, room temperature is about 30 C is some of the methods of treating hypothermia.
3. Dehydration :
   - Do not go with the classical signs of dehydration. Ask the mother for the recent history of the child. Give the child low osmoral ORS give 5ml/kg body weight in every 30 min for the first 2 hrs.
   - When the child has 3 or more signs of improvement stop giving ORS routinely in alternate hours. For children less than 2 yrs give 50 ml after each loose stool. For children more than 2 yrs give 100 ml after each loose stool. This is done to replace the losses.
4. Electrolyte imbalance: Sodium potassium gets hampered. Potassium is leaked out of the body and lost through urine. Give supplemental potassium at 3-4 meq/kg/day for at least 2 weeks. It should be diluted with water. On day 1 give 50% magnesium sulphate IM one (0.3 ml/kg) upto a maximum of 2 ml. From day 2 give 0.2-0.3 ml/kg orally as magnesium supplement mixed with feeds. Give food without added salt to avoid sodium overload.
5. Treat infection- irrespective of complication antibiotics is given to all
6. Micro nutrient treatment-

   Give vitamin A dose orally to the child according to the age.

   Less than 6 months- 50,000 IU, 6-12 months or weight less than 8 kg- 1,00,000 IU and more than 12 months- 2,00,000 IU. If the child is more than 12 months but having weight less than 8 kg should be given 1,00,000 IU orally irrespective of age. A 12 months child is generally more than 8 kg. If the child does not weigh 8 kg then treat the child as less than 1 yr and give 1 lakh IU. Folic acid should be given 5mg on day 1 then 1 mg/day. Elemental zinc- 2mg/kg/day start daily iron supplementation after two days of the child being on Catch up diet. Give elemental iron in the dose of 3 mg/kg/day in two divided doses.200 mg albendazole for children aged 12-23 months, 400 albendazole for children aged 24 months or more.
7. Appetite test: This test is done to find out the metabolic malfunction /abnormality. Feeding protocol depends upon the appetite test. The children are divided into two groups as per their age (7-12 months and > 12 months). For 7-12 months offer 30-35ml/kg of catch up diet. For children > 12 moths give prepared therapeutic food (roasted ground nut, milk powder, sugar, coconut oil). If the child eats it then appetite test is passed by the child. If the child fails the appetite test then the child has to go through 3 phases i.e initial phase, transition phase and rehabilitation phase. From day 1 to day 3 is called initial phase where the child is given starter diet (F 75). In day 1, it is given in the interval of 2 hrs, in day 2 in the interval of 3 hrs and in day 3 in the interval of 4 hrs. Day 4 to 6 is the transition phase. Day 7 onwards is called rehabilitation phase. RUTF- Ready to use therapeutic feeding, LTF- Local therapeutic feeding (roasted ground nut, milk powder, sugar, vegetable / coconut oil) - prepared in NRC for appetite test.
8. Start catch up diet: In rehabilitation phase catch up diet (F 100) is given to the child. This phase is the rebuilding phase. Actual growth starts from this phase. When a child passes appetite test, it indicates that the child has no infection/complication. The treatment should start from rehabilitation phase. Give the child catch up diet starting from minimum to maximum.

   Supplementary Suckling Technique (SST) is used to initiate re lactation in mothers who have developed lactation failure. This technique can be used for children less than 6 months. In SST the infant suckles and stimulates the breast at the same time drawing the supplement (expressed mother's milk or therapeutic formula) through the tube, and is thereby nourished and satisfied. SST stimulates prolactin reflex to secrete more milk. The Suckling Technique.
9. Sensory stimulation: It is done in rehabilitation phase. It includes play therapy, physical activities.
10. Discharge and Follow up: When there is 15% weight gain of admission weight the child is discharged from the NRC. For oedema child 15% weight gain of the weight when odema is resolved. There are 3 follow ups. In 15 days gap in first month and then after one month.

MATERNAL CALCIUM SUPPLEMENTATION AND DE-WORMING

Adequate calcium intake during pregnancy and lactation has the potential to prevent pre-eclampsia, pre-term birth, neonatal mortality (NNM). It also improves maternal bone mineral content, breast milk concentration and bone development of neonates. Daily recommended dietary allowances (RDA) for calcium in pregnancy and lactation is 1200 mg per day. There are no side effects of calcium if taken within the recommended limit (1gm/d). Excessive consumption of calcium (>3 gm/d) may increase the risk of urinary stones and Urinary Tract Infection (UTI) and reduce the absorption of essential micronutrients. Calcium tablets should be taken twice a day (1gm/d) starting from 14 weeks of pregnancy up to 6 months post-partum. Each calcium tablet should contain 500 mg elemental calcium and 250 IU vitamin D3, which helps in better absorption of calcium. During pregnancy 360 tablets should be taken and more 360 tablets should be taken in the first six months of post natal period (2 tablets per day). Calcium and IFA tablets should not be taken together as calcium inhibits iron absorption. Calcium tablets should not be taken in empty stomach since it causes gastritis.

De-worming: Soil Transmitted Helminthes (STH) infections are common worldwide, contributing to a high burden of malnutrition and morbidity in resource poor settings. Hookworm infestation is one of the commonest STH infestations contributing to the burden of anemia in the world. In areas where hookworm infestation is endemic, up to 90% of pregnant women (PW) are anemic. In India, more than 50% pregnant women are affected by anemia. It is an important cause of maternal morbidity and mortality, pre-term birth, Intra Uterine Growth Restriction (IUGR), Low Birth Weight (LBW) and poor iron status in the infant.

Albendazole is the recommended drug of choice for de-worming in PW. De-worming should be done after 1st trimester preferably during 2nd trimester. Albendazole (400 mg) should be given to PW as DOT. WASH measures should be encouraged for improving sanitation and hygiene.

REFLECTIONS & DISCUSSION

Q: Stunting is irreversible after 24 months, but if we intervene within 0-24 months can it be reversed?

A: It is not rectifiable. But the child will catch up. For individual it is not much difference. This is prevalence. Not one child growth. If we intervene for 0-24 months we can address the population.

Q: Can stunting be affected due to growth hormone?

A: Due to deficiency of growth hormones, growth will be reduced. It is one component. Stunting is the indicator of societies of development. Nutrition is the most direct issue to be addressed.

Q: In the intergeneration cycle of under-nutrition, if proper food is given in between under nourished adolescent girl and under nourished pregnant women can these be prevented?

A: Adolescent is a kind of window of opportunity. Requirement of food is more. Under nutrition to be addressed at the population level.

Q: In normal delivery and caesarian, is the secretion of colostrums equal?

A: Yes

Q: In pre-pregnancy state, is there any limit of taking IFA?

A: In pregnancy 16-20% is required.

Q: Why folic acid is given with iron?

A:Folic acid prevents neural tube defect. It is not prescribed in the first trimester as there is a chance of nausea, vomiting etc. and also spontaneous abortion. Folic acid is given with iron as the two chemicals have no enmity. Folic acid helps in absorption of iron and also cost effectiveness of the programme.

Q: Why calcium is not started before 14 weeks?

A: There will be some fetal problem. It may have negative effect on fetal growth.

Q: Is there any chance of deposition of calcium in stomach?

A: There is chance of toxicity, it is limited. Calcium is required during lactation period. The baby takes whatever calcium available. Supplementation is therefore required.

Q: Stunting is irreversible. During birth if the child is stunted what will happen?

A: If from the birth to 2 yrs proper nutrition is given, the child can catch up. To prevent this, women's nutrition should be taken care of before, during and after pregnancy. The child's 1st 1000 days of life can be corrected.

Q: Why iron is not taken in empty stomach?

A: Iron absorption is good if taken in empty stomach but it has side effects. In programmatic point of view, it is advised to take iron in full stomach to minimize the side effects.

Q: In some cases we see mother's milk secretion is less. In caesarian case does this also happen?

A: In normal condition immediately support breast feeding. More frequent breast feeding will lead to more milk secretion.

Q: Is there any tool for measuring stunting?

A: The focus is limited to cure. If a child is moderately stunted it can be halted. Focus is to address through prevention.

Q: If a 6 months child is suffering from diarrhea, can ORS be given?

A: Any supplement ORS, medicines can be given with exclusive breast feeding.

Q: Can iodine in salt get evaporated easily?

A: Iodine is sublime in nature. Salt is iodized with KIO3 which has a high melting point. So it does not get evaporated easily.

Q: Difference between complementary and supplementary food?

A: Supplementary is addition of something extra to the diet of the child (ICDS, SNP prog). Complementary complements the diet.

Q: Which teams work in AEFI?

A: AEFI team works in immunization sites. The team consists of doctors, ANM/staff nurse.

Q: In 10-19 yrs, how much mg of elemental iron is given?

A: 100 mg; and also pregnant women are given 100 mg. Both the tablets are enteric coated. Pink tablet which is for children is sugary coated.

Q: How to address any adverse effect in the school?

A: There is a linkage. At school the teacher reports to the principal who informs the parents and health staff in charge (ANM/MO-IC). They inform the AEFI team.

Q: Why IFA is only given in Govt. schools?

A: It is given in Govt. and Govt. aided schools. When there will be 100 % coverage in Govt. schools then maybe there will be shift to private schools.

Q: A child more than 6m came to NRC, has not immunized. Can the child be immunized? If yes, will there be any infection?

A: Sick children are not generally infected. Immunization is done during rehabilitation phase. The doctor decides what to do.

Q: Neural tube defect starts from 1st trimester. To stop this why folic acid is not given?

A: Folic acid is not included in the programme. It can be prescribed one to one. There should be quality ANC so that mother does not become anemic. Late cord clamping (60 sec above)

Q: Why measles is given with vitamin A?

A: Because it prevents the severity.

Q: If calcium is taken with diet rich in iron, is there any effect on iron absorption?

A: Calcium is given as direct supplementation. It immediately goes into blood. There is an issue of bio availability of iron.

Q: Why de-worming is not done in 1st trimester?

A: There is a problem as 1st trimester is prone to abortion.

Q: A stunted child is having normal weight. Can the child be called stunted?

A: A stunted child may or may not be under weight or wasted.

Q: How will we know that a baby is stabilized?

A: When the baby is active, taking feeds and there will be no medical complications.

Certificate Distribution

PROCESS DOCUMENT

TRAINING & REFRESHER OF NURSING TUTORS / FACULTIES ON NUTRITION COMPONENTS

SAMAJ KALYAN FOUNDATION

Plot No. N 4/184, IRC Village, Nayapalli
Bhubaneswar - 15, Odisha, India
Ph + 91 674 2555888, Fax +91 674 2550888
Mob. +91 9439960888/ 9437279730/ 9338206154/9668128008
E_mail: skfodisha@rediffmail.com
Visit us at : http://www.skfindia.in

Supported by

unicef
Bhubaneswar

BACKGROUND

Nursing staffs play a significant role in the mother & child health issues, as they regularly come in contact and interact with mothers and other care takers. Hence, it is pertinent that they should acquire the basic knowledge and skills on subjects related to nutrition components. In the context of our State, though the nursing curriculum has some of the technical aspects on nutrition in the course of study, but the nutrition components were not spelt out in detail. After a continuous effort from UNICEF, the Department of Nursing initiated a process of revision of the curriculum with integration of nutrition components in detail into the existing curriculum of ANM, GNM & Basic B.Sc. Nursing courses. In collaboration with the Department of Nursing (Directorate of Health & Family Welfare), Government of Odisha, UNICEF provided training to 370 nursing faculties/tutors in the 1st phase during April-June 2015. Looking into the need that came out from the assessment and monitoring, during August-October 2016, second phase training was conducted for another 120 tutors/faculties and refresher was conducted for the 370 trainees already went through the training.

BASICS OF NUTRITION

The World Health Organisation (WHO) defines nutrition as "A process where living organisms utilize food nutrients for the maintenance of life, maturation, and normal functioning of organs and tissues and the production of energy."

Some basic terms used in nutrition are Food, an edible substance containing one or more nutrients. Nutrition is a process of ingestion, digestion, absorption and utilization of essential nutrients that cannot be synthesized by the body need to be provided from external sources. Essential nutrients can be categorized into two on the basis of their requirement, one is macro nutrients which is required in large quantity, and provides energy (protein, carbohydrates & fat) and the other is micro nutrients which is required in less quantity and performs a number of vital functions in the body (vitamins & minerals). Based on the functions, food can be divided into three types. 1. Energy Giving (Carbohydrate) 2.Body Building and 3. Protective food. There are 7 types of food groups. 1. Grains and tubers, 2. Legumes and Nuts, 3. Milk and milk products, 4. Flesh foods, 5. Eggs, 6. Vitamin A rich fruits and vegetables, 7. Other fruits and vegetables.

A deficiency in the nutrients leads to malnutrition. Malnutrition means any deviation from normal nutrition. It encompasses both over and under nutrition. Under nutrition is of three types

1. Under weight (low weight for age). It is a composite measure of acute and chronic malnutrition
2. Stunting (low height for age). An indicator of chronic malnutrition. Wasting (low weight for height). An indicator of acute malnutrition. A wasted child can recover if proper nutrition is given.

Stunting also affects the intellectual growth. It is irreversible. If a child is stunted he/she cannot catch up the height and the mental growth that is lost. A stunted woman gives birth to a stunted baby. As per Rapid survey on children in Odisha 38.2 % of U3 children are stunted 18.3 % of U3 are wasted, 38.2 % of U3 children are underweight. The NFHS III trends further tells that nearly 30% children start at a disadvantage at birth with LBW, proportion of underweight and stunted children raises from 6 months onwards plateaus at 24 months.

Deficiency of not only protein, energy and carbohydrate but also there is something else which can result to SAM. Michel Golden in 1995 categorized it into Type I and Type II micronutrients. TYPE-I (functional nutrients) – maintains basic body functions. TYPE-II (growth nutrients) helps in body growth. TYPE I has a body store, reduces in concentration with deficiency, has specific signs of deficiency, growth failure not a feature, variable in breast milk. TYPE II has no body store, no specific signs of deficiency, growth failure the dominant feature, stable in breast milk, recovery from illness delayed.

BASICS OF IYCF

Appropriate and adequate feeding is important for a child below two years for its optimal growth and development. It is the most crucial period of development. WHO recommends initiation of breast feeding within first hour of birth and exclusive breast feeding upto 6 months of age with continued breast feeding along with appropriate complementary foods upto2 yrs or beyond. About 800 000 children's lives could be saved every year among children under 5, if all children 0–23 months were optimally breastfed (Lancet 2013 Nutrition Series).

Infant & Young Child feeding is a programme of Ministry of H&FW. As recommended in National Guidelines on Infant & Young Child Feeding (2006) there are 4 recommendations

1. Initiation of breast feeding for child within one hour of birth
2. Exclusive breast feeding up to 6 months
3. Initiation of appropriate complementary feeding from the age of 6 months
4. Continue breast feeding for 2 years or beyond

Optimal IYCF practices: Early initiation of breastfeeding within one hour, exclusive breastfeeding for the first 6 months of life i. e 180 days, timely introduction of complementary foods (solid, semisolid or soft foods) after the age of six months i. e 180 days, continued breastfeeding 2 years or beyond, age appropriate complementary feeding for children 6-23 months, while continuing breastfeeding and active feeding for Children during and after illness.

Advantages of breast feeding for infants: All the nutrients are in proper proportion for optimal growth and development, easily digestible (Mother's milk contains PUFA (Poly Unsaturated Fatty Acid). It contains enzymes like lipage which helps in digestion of lipids. Mother's milk contains more of whey, less of casin), germ free as it is transferred directly from the mother to the baby, provides immune factors which provide protection against infections e.g. pneumonia, diarrhea etc. at right temperature, makes child more intelligent, protection against asthma and allergies, protection against obesity, hypertension, heart disease and diabetes in later life, decreased risk of some cancers, stronger mother - Infant bonding.

Advantages for mother: Mother looses fat through breast milk (for one day a lactating mother has to spend 500 kcal from body for the production of milk). Helps her to get back in shape (to be complemented with exercises and avoidance of excessive fat intake), decreased risk of breast, ovarian and uterine cancers, helps to delay next pregnancy; but the mother should not depend on this as the sole method of contraception. (To consult doctor six weeks post-delivery), early expulsion of placenta, uterus contracts faster to pre-pregnancy state, decreased post-delivery bleeding, convenient and requires no preparation, protects from post-menopausal osteoporosis, free of cost. Breastfed babies fall less sick. Hence family saves on medical expenses, declining breastfeeding rates would increase the need for animal milk.

Benefits of colostrums: It is rich in antibodies and protects the body from infection, first vaccine for the child, helps the baby to pass its first stool (meconium)- this helps in reducing the severity of psychological (normal) jaundice, helps to complete maturation of intestines, rich in vitamins A & K.

Pre Lacteal Feed: This custom increases the risk of infection. This feed may decrease baby's eagerness to suckle at the breast. So, the first and the subsequent breast feeds may get delayed.

Bedding in the child to be kept close to the mother, the baby remains warm. It promotes demand feeding, the risk of infection is reduced, helps le down of milk and develops a stronger emotional bonding between mother and child.

Frequency of breast feeding: it is necessary to feed the baby at least 8-10 times in 24 hour. When the weight of the child increases 500 gm in one month, in 6 months the weight is doubled and in one year the weight is three times, then only we can know that mother milk is sufficient for the baby. Urine is 6-7 times per day. Mother should feed on one side as long as possible because the milk which comes initially is rich in water and sugar (foremilk), while the milk which comes in the later part of the breast is rich in fats (hind milk)

Correct attachment and position during breast feeding: Mother should be alert and comfortable during breast feeding, if the baby's attachment to the breast is not attached properly then it causes cracked / sore nipple.

Complementary feeding should begin after completion of 6 months or completion of 180 days with continued breast feeding till 24 months. Around the age of 6 months an infant's need for energy and nutrient stats to exceed what is provided by breast feed and complementary foods are necessary to meet those needs. Exclusively breast feeding for 6 months protects from GI infection, enhances motor development, prolongs lactation, meets the nutrient requirements and is sufficient for growth.

Appropriate Complimentary Feeding: In 6-9 months the child gets 70% of energy from breast milk and 30% is provided by complementary food. It can be given 2-3 times starting with 2-3 spoonful to ½ bowl. In 9-12 months the child gets 50% of its energy requirement from breast milk and 50% from complementary food. It is given 3-4 times from ¾ bowl to full bowl. In 1-2 yrs the child gets 30% of its energy from breast milk and 70% from complimentary food which is given 5 times or more from more than one bowl to as per child's requirement.

Safe preparation of complementary food- wash hands before preparing and eating food, store food safely and serve immediately after prepared, use clean utensils to prepare & serve also use clean cup or bowls while feeding, avoid feeding bottles: route of transmission of pathogens.

Feeding child during illness: Encourage the child to drink and eat, feed small amounts, frequently, give the food that the child likes, give variety of nutrient-rich food, continue breast feed.

Breast feeding in HIV positive infant: exclusive breast feeding for first 6 months, replacement feeding in HIV to be selected in basis of AFASS criteria, i.e., A- Acceptable, F-Feasible, A- Affordable S- Safe, S- Sustainable. Other feeding options include Wet nursing- breast feeding by another HIV negative mother, human milk from breast milk bank, avoid mix feeding as it increases HIV transmission two folds, in case of nipple fissure, engorgement, mastitis, oral thrush in baby, thrush in areola, and nipple of mother avoid breast feeding.

Counseling of mothers: It is a way of working with people in which you try to understand how they feel and help them to decide what to do. Counseling includes listing and learning skills, building confidence and giving support and follow up. There are six listening and learning skills, skill1- helpful non verbal communication skill 2- ask open ended questions 3-use responses and gestures which show interest skill 4- reflecting back 5-empathize skill 6- avoid judging words.

Nutritional components play an important role in child development. The first 1000 days from conception to 2nd yr of life is the most crucial period called as the window of opportunity. Poor nutrition in this phase can lead to stunted growth, which is irreversible and associated with impaired cognitive ability and reduced school and work performance. So, the 10 evidence based intervention care for children under two and their mothers can be practiced to have a significant impact on the child's optimal growth and development.

NEW WHO GROWTH MONITORING

Malnutrition is any deviation from normal nutrition. The term encompasses both over and under nutrition. In the context of Odisha, the focus is on under nutrition which results due to poor absorption, inadequate diet or loss of nutrients. On the other hand, over nutrition is divided into overweight and obsess.

Under nutrition is further divided into:

1. Under weight (low weight for age). It is a composite measure of acute and chronic malnutrition
2. Stunting (low height for age). An indicator of chronic malnutrition
3. Wasting (low weight for height). An indicator of acute malnutrition

To find out under nutrition weight for age chart is useful. In anganwadi centres this chart is followed to find out the nutritional status of the child. Previously the Harvard standard was used. It has some limitations so it was replaced by the new WHO growth standards.

It has been observed that in optimum condition (adequate environment, adequate nutrition, and adequate health care) children from birth to 5 yrs tend to grow at the same pace. The old growth standards (Havard Standard) was based on one community, mix feeding infants and was same for boys and girls. While New WHO growth standards are from 6 countries (India, Ghana, Oman, U.S.A, Brazil and Norway). New standards are sex specific while old standards are unisex. New standards are based on S.D. internationally accepted classification.

To assess the nutritional status of a child we need accurate age, accurate weight, plotting the weight on growth chart, interpreting the curve and counseling of mother and care takers. While plotting, completed months and completed years should be considered. While plotting in the first month, completed weeks should be considered. In the information box name of the child, father and mother's name, family survey registration number and weight at the time of birth (weight of the child taken within 24 hrs of birth) is to be mentioned. Accordingly weight for age of the child is to be plotted in the chart. Green zone is for normal, yellow is moderately underweight and red is severely underweight and white indicates growth problem. If there is any clinical signs like bitot spot, oedema of feet etc. is to be mentioned. If the line is slopping upwards then the child is growing well. In this case the mother should be given complements. If the growth curve remains flat there is a chance of fall and if the curve is going downwards it is dangerous. Counseling of mother is required in this condition.

VITAMIN A SUPPLEMENTATION AND DE-WORMING

Vitamin A is a fat soluble vitamin which can be stored in the body for a long period. It is required for healthy epithelium, maintenance of cell function for growth, normal vision, prevention of Xerophthalmia, builds resistance against pneumonia, measles and diarrhea, hence reduces child mortality.

Vitamin A is available in two forms, in plant source as beta carotene and in animal source as retinoid. The conversion rate of carotenoid to retinol is 12:1. The RDA for retinol and beta carotene is highest for pregnant women and lactating mothers i.e., 800 and 6400, 950 and 7600. VAD is the leading cause of preventable blindness in children, compromises immune system leading to morbidity and mortality in U5 children.

There are some symptoms of VAD like night blindness (XN), Conjunctival xerosis (XIA), Bitot spot (XIB), Corneal Xerosis (X2) which are reversible. The irreversible blindnesses are Keratomalacia (X3B) and Corneal scar. The causes of VAD are inadequate diet, infections like ARI, measles, diarrhoea, illiteracy and lack of awareness and poverty. Vitamin A supplementation starts when U5 death is above 50 per cent per live births, when there is few dietary options available in the community, when vitamin A deficiency below minimum public health thresholds, both for xerophthalmia and serum retinol levels. The public threshold limit is 5%.

VAS started in India in 1970 as 'National Prophylaxis programme' for protection of blindness due to Vit-A deficiency. Later it was merged with RCH programme. In Nov 2003, ICMR recommended the first dose of Vit A at 9 months with measles, bi-annual dose to be given to children older than 12 months of age as a package of service. In Odisha, bi-annual approach started in 2004. It is included under UIP and Mission Indradhanush. The animal source of vitamin A are liver, eggs, meat, fish, milk and milk products, the vegetable sources include any yellow or green and leafy vegetables. Dietary sources must be promoted as vitamin A absorbed only for 2-3 months.

Vitamin A administration

9 – 12 months - 1 ml (100,000 IU) (30 mg RE)
13 – 59 months - 2 ml (200,000 IU) (60 mg RE)
(IU-International Unit, RE-Retinol equivalent)

In planning of vitamin A rounds there is focus on hard to reach and urban areas, separate coverage plan for Urban & hard to reach populations/areas, there is orientation of Health and ICDS functionaries on vitamin A supplementation. ASHA and AWW need to play a major role in mobilizing children on the specific days of round.

Bundling of de-worming with biannual vitamin A supplementation rounds in Odisha

(U5 children): Soil transmitted helminthes (STH) and schistosomes most common infection worldwide wherever there is Tropical Climate, Inadequate sanitation, Unhygienic conditions. About two billion people are chronically infected with STH. In India prevalence of worm infestation varies from 5% to 76%. In Odisha, about 40-50% of the tribal population is infected with worms and children 0-14 years are more affected than adults (ICMR, 2003). Worm infestation in preschool children leads to chronic infections, poor nutritional status, poor growth, anemia, poor cognition, thus affecting the immune system. To address this problem there is bundling of deworming with vitamin A.

Recommended dosage for deworming:

Drug	Dose for pre-school children		Comments
Albendazole (200mg)	½ tablet for children 1-2 years	5 ml for children 1- 2 years and older	Easy to administer
Albendazole (400 mg)	1 tablet for children 2-5 years	10 ml for children 2 years and older	Easy to administer

UNIVERSAL SALT IODIZATION

Iodine is a micro nutrient required in a minute quantity daily i.e 150 µg daily. The total quantity present in body is 15-20 µg mostly in thyroid gland. It is an essential component of thyroid hormone (T4 thyroxin hormone) needed for optimal mental and physical development and regulation of body metabolism. Daily requirement of Iodine for 0-11months – 50mg per day, for 12- 59 months -90 mg per day, for 6-12 yrs- 120mg per day, for more than 12 yrs- 150 mg per day, for pregnant and lactating mother – 200mg per day.

There are 50,000 brain cells produced/second in developing fetal brain and one million billion connections between these brain cells. In an iodine sufficient brain, better the branching better connection and higher is the IQ where as in iodine deficient brain less is the branching, less connection and lower IQ. The broad spectrum of IDD has loss of 13 IQ points, leading cause of mental handicap, defects of speech and hearing, squint eye, psychomotor defects, spontaneous abortions, still births, birth defects while goiter and cretinism are visible the others affect the most. Like an iceberg goiter and cretinism is visible while the others are not visible but can affect at different life stages. IDD in foetus can lead to birth defects, still births, spontaneous absorption, psychomotor defects children and adolescents can result to hypothyroidism, impaired mental function, retarded physical development, giotre and in adults its deficiency causes impaired mental function, hypothyroidism, goitre and its complications.

Best way to consume iodine is through salt. FSSCI recommends the level of iodine should be not less than 30 ppm at the manufacturing level and not less than 15 ppm at consumption level. In India salt is iodized with KIO3 so that iodine does not evaporate. Iodine content of iodated salt is estimated by a Lab test called iodometric titration.

In 1992 NIDDCP programme was launched in India. In 2000 central govt. banned the sale of non-iodized salt. Odisha banned it in 2001. Aim of NIDDCP is to prevent, control and eliminate IDD (abortions, still births, mental retardations, deaf mutism, squint, dwarfism, goitre, neuromotor defects etc). To address the magnitude of the problem of IDD it is important to reach out the vulnerable community (pregnant women, lactating mothers, young children, adolescents). The easiest way to reach the community is through fortification of iodine in salts. There is a need to promote the use of iodized salt. Supply of iodized salt through PDS and the use of logo of the smiling sun in the packets to know the salt is iodized.

NATIONAL IRON PLUS INITIATIVE

National Iron Plus Initiative is a life cycle approach addressing 6 months to till the end of reproductive age group. Anemia is a condition in which the number of RBCs and consequently their oxygen carrying capacity is insufficient to meet the body's physiological needs.

The causes of anemia can be categorized into nutritional and non-nutritional. The nutritional causes include deficiency of specific nutrients due to low dietary intake or due to low bio availability of iron (tea with meal, phytic acid and fibre in bran, calcium phosphate supplement with meal, phopvitin in egg hinders the absorption of iron). The non-nutritional causes can be further segregated into pathological causes (Blood loss or destruction of blood cells due to malaria, worm infestation) and physiological causes (blood loss during menstruation, delivery).

Several consequences of anemia are impaired child development, poor immunity, lack of concentration, lack of interest in work, reduced ability to memorize, poor school performance, poor work capacity, poor productivity, maternal anemia results in poor IGUR, LBW. If a pregnant women is anemic there will be low output cardiac failure, PPH, predisposes to infection, risk of thrombo embolism, delayed general physical recovery especially after sigerian section. In foetus the effects are IUGR, LBW, preterm birth, depleted iron store, delayed cognitive function.

IFA SUPPLEMENTATION PROGRAMME AND SERVICE DELIVERY

Age group	Intervention dose	regime	Service availability
6-60 months	1ml dose of IFA contains 200mg of iron 100mcg of folic acid	Biweekly (Tues & Fri) throughout the period of 6-60 months of age and deworming for children 12 months and above	Through ASHA Inclusion in MCP card
5-10 yrs	Tab of 45 mg elementary iron and 400mcg of folic acid	Weekly throughout the period of 5-10yrs of age and biannual deworming	In school through teacher. For out school children through AWC Mobilization by ASHA
10-19yrs	100mg elemental iron and 500mcg folic acid	Weekly throughout the period 10-19 yrs of age and biannual deworming	Through school teacher (Mon). for out school children through AWC(Sat). mobilization by ASHA
Pregnant and lactating	100mg elemental iron and 500mcg folic acid		ANC/ANM/ASHA. Inclusion in MCP card
Women in reproductive age group	100mg elemental iron and 500mcg folic acid	Weekly throughout the reproductive period.	Through ASHA door step distribution