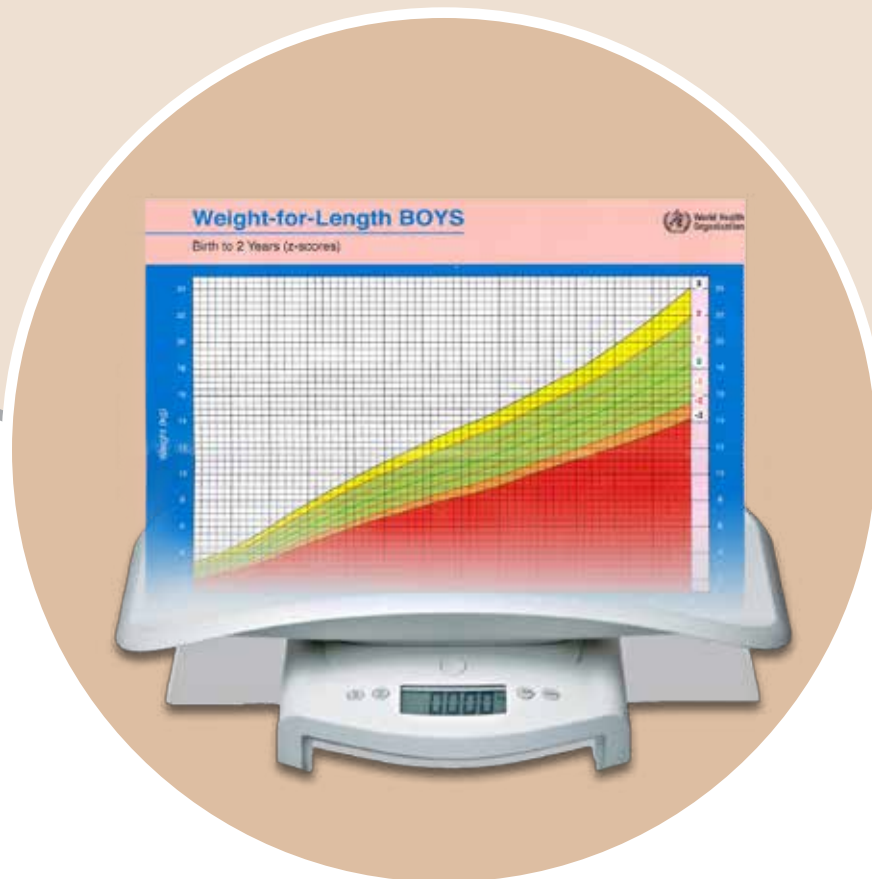




**Ministry of Health
Sultanate of Oman**

STANDARD OPERATIVE PROCEDURE FOR MANAGEMENT OF MALNUTRITION

**IN INFANTS AND YOUNG CHILDREN
AT PRIMARY HEALTH CARE SERVICES**



**DIRECTORATE GENERAL OF PRIMARY HEALTH CARE
DEPARTMENT OF NUTRITION**



**Ministry of Health
Sultanate of Oman**

STANDARD OPERATIVE PROCEDURE FOR MANAGEMENT OF MALNUTRITION

IN INFANTS AND YOUNG CHILDREN AT PRIMARY HEALTH CARE SERVICES

**DIRECTORATE GENERAL OF PRIMARY HEALTH CARE
DEPARTMENT OF NUTRITION**

**2017
ML-38**

Chief Authors	Dr. Samia Al Ghanamia Director Department of Nutrition.
	Dr. Amel Ibrahim Ahmed Pediatric Specialist / Department of Nutrition.
Contributors	Mr. Saleh Al Shamakhy Statistician / Department of Nutrition.

Acknowledgements

Acknowledgements to those who have helped us in contributing, writing and reviewing this guideline:

Prof. Yasser Wali, MD PAED., FRCPCH (UK) - Sultan Qaboos University

Dr. Bashir Bhat (MD;FRCPCH) - Senior Consultant Pediatrics at Khoula Hospital

- **Head of Nutrition in all governorates.**
- **Head of statistics and information sections in all governorates.**
- **WHO for reviewing the contents of this manual.**

Received constructive suggestions for improvement of this manual will be appreciated and will be taken into consideration while bringing out the next edition.

Preface

We are all aware that a child's development is one of the most important indicators of the state of his health, mental and psychological integration.

Malnutrition remains one of the most common causes of morbidity and mortality among children worldwide. In 2001, according to the WHO reports, 54% of all childhood mortality worldwide was attributable, directly or indirectly, to malnutrition.

Malnutrition does not only lead to increased rate of morbidity and mortality in children, but that the survivors of the brunt live to be less productive than their peers from the physical and mental point of view, and this leads to a vicious circle of poverty and disease.

In Oman, based on the results of the National PEM survey 1999, approximately 18% of the children below five years of age suffer from underweight and 7% of them suffer from wasting who are at risk of severe impairment of growth and psychological development.

Referring to our national survey, the incidence of malnutrition rises sharply during the period from 6–18 months of age, and the deficits acquired at this age are difficult to compensate for later in childhood.

Grateful to all efforts, we achieved a lot in the management of malnutrition. Since 1999, we worked hard together, and talking about some of the outcomes of these efforts we can say that many of the required resources were provided and a clear system of management was established as well.

National Nutrition Surveillance report (2010), done in 2009, shows that underweight with the most consistent improvement 8.6%, wasting 7.1% and stunting 9.8% reduced and the prevalence of both overweight and obesity was 1.9% and 0.5% respectively.

Although malnutrition rates seemed to decline over the last 10 years, they are not commensurate with the socio economic levels, the high accessibility of health care and educational services.

Wish you all success and the most fruitful outcome of Malnutrition Management Program in Oman.

Dr. Saeed Bin Harib Al Lamki

Director General Of Primary Health Care

Introduction

Improving the health of Omani Infants and Young children (below 5 years) is a main goal of the MOH strategy. Inadequate or inefficient care during this period not only affects their health but also such babies remain vulnerable to diseases.

A number of studies have been conducted in Oman to assess the nutritional status of Omani children under the age of five years. The Gulf Family Health Survey (1995) showed that 14.1% and 12.1% of Omani preschool males and females respectively fell below (-2SD) of the median weight for height of the reference population. In the same study, 23.1 % and 22.9% of males and females respectively were stunted, whereas 23.4% and 24.6% were underweight.

In the National PEM survey (1999), stunting rate was 10.6% in children below five years (with no significant difference between males and females) and underweight was 17.9%. This study also represented that 7.0% of the preschool children were wasted.

Data presented in the National Nutrition Surveillance report (2010) done in 2009, showed that underweight with the most consistent improvement 8.6%, wasting 7.1% and stunting 9.8% while prevalence of both overweight and obesity was 1.9% and 0.5% respectively.

Nutrition Department worked hard on this national program and a clear system of management was established. A Guideline and management protocols were developed. Registration, monitoring and follow up systems are maintained. Training tools on lactation counselling, complementary feeding counselling, anthropometric measurements are provided, and trainers for all regions are available.

We developed this manual in order to update the operative procedures in managing children with malnutrition. This targeted all children under five years screened or identified to have underweight (low-weight-for-age); wasting (low-weight-for-height), stunting (low-height-for-age) and obesity (high-weight-for-height) as identified by the reference guide.

We hope that all services providers' at all different levels in health care sectors will make the best use of this guideline and by doing so; they help us in achieving our goal of promoting the health of children under five years old.

We would like to thank all those who have supported us by reviewing this document and have given their valuable inputs during its development.

Dr. Samia Al Ghanamia

Director of Nutrition Department

Table of Contents

	Pages
List of Abbreviations	08
Section - 1	09
Background, Rational and Objectives	
1.1 Introduction	10
1.3 Objectives of Malnutrition Controlling program	12
1.4 Risk Factors of Malnutrition	12
1.5 Complications of Malnutrition	14
Section - 2	15
Classification & Assessment	
2.1 Definitions of Malnutrition	16
2.2 Assessment of Children	17
2.3 Registration	20
Section - 3	21
Management of Malnutrition	
3.1 Lines of management	22
3.3 Stunting Prevention	24
3.4 Criteria for discharge	26
3.7 Treatment of Associated Micronutrients Deficiency	28
Section - 4	33
Anthropometric Assessment	
Section - 5	39
Reporting and Surveillance System	
Annexes	49
References	67

List of Abbreviations

Abbreviation	Definition
BMI	Body Mass Index
CSG	Community Supportive Group
EPI	Expanded Program of Immunization
FP	Focal Point
HB	Hemoglobin
IDA	Iron Deficiency Anemia
MOH	Ministry of Health
PEM	Protein Energy Malnutrition
PHC	Primary Health Care
RG - 23	Child Health Register
SD	Standard Deviation
WHO	World Health Organization



Section - 1

Background, Rational and Objectives

Policy Guidelines

This guideline is part of a multi-level program to combat Malnutrition in Oman. It targets primary health care providers responsible for management of children with malnutrition and nutritional anemia.

Ministry of Health's policy is to screen all children under five years for underweight, wasting, stunting overweight and obesity at each primary health care visit.

The service will target:

All children under five years old screened or identified to have underweight (low-weight-for-age), wasting (low-weight-for-height), stunting (low-height-for-age) and obesity (high-weight-for-height), as identified by the reference guide.

Who will be excluded from the scope of this service?

All children under five years old with congenital anomalies, inherited blood disorders, chronic diseases and preterm infants are excluded from the scope of this guideline.

Who will provide this service?

All Primary health care staffs dealing with mother and child and are responsible for child health care should use this guideline. EPI Nurses, Triage Room Nurses, Dieticians, Physicians and Nutrition Focal Points in primary health care institutions are responsible for implementation of this guideline. Head of Nutrition and Head of Primary Health Care Sectors in all governorates responsible for following up and monitoring the implementations of this guideline in their primary health care institutions.

1.1. Introduction

Malnutrition is a public health problem that exists among children in developing countries and in certain communities of some developed countries mainly resulting from poor nutritional intake, bad hygienic practices and frequent infections. It is an important indicator of the health and development of nations; therefore, it is extremely important to contain it with adequate preventive and curative measures. These measures could vary from clinical management of individual cases to implementation of public health measures such as food fortification, dietary diversification, anti-parasite prophylaxis, food supplementation, and health education. The measures should be adapted to the situation in individual countries.

1.2. Malnutrition in Oman

Several studies in Oman were conducted to assess the nutritional status of Omani children below the age of five years. The Gulf Family Survey (1995) found that 14.1% and 12.1% of Omani preschool males and females respectively fell below (-2SD) of the median weight-

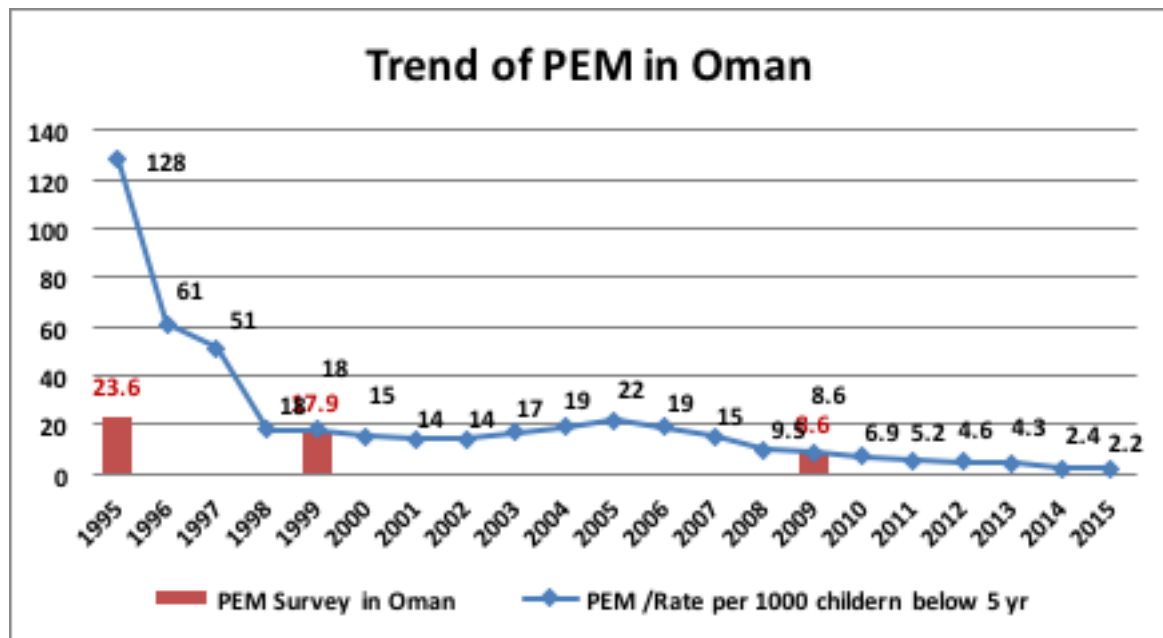
for-height of the reference population. In the same study, 23.1% and 22.9% of males and females respectively were stunted and 23.4% and 24.6% were underweight.

In the National PEM survey (1999), stunting rate was 10.6% in children below five years, with no significant difference between males and females, and under-weight was 17.9%. This study also showed that 7.0% of the pre-school children were wasted.

Data presented in the National Nutrition Surveillance report (2010) from the last national nutrition survey done in 2009, “showed” that underweight with the most consistent improvement reaching 8.6%, wasting 7.1% and stunting 9.8% while prevalence of both overweight and obesity was 1.9% and 0.5% respectively.

Although malnutrition rates seemed to decline over the last 10 years, they are not proportionate with the socio-economic levels and the high accessibility of health care educational services.

Malnutrition prevalence starts to increase at the age of 6 months among both males and females, until the age of 24 months, when it plateaus and then slopes down. Therefore, intervention strategies to combat malnutrition should focus on the first 24 months in the child’s life.



- PEM = UNDERWEIGHT (LOW WEIGHT – FOR- AGE)

1.3. Objectives of Malnutrition Controlling program

1. Ensure continuous coordination between primary health care institutions and the community in the management of malnutrition.
2. Reduce prevalence of underweight and wasting among Omani infants and young children below five years old to less than 5%.
3. Reduce stunting among Omani infants and young children below five years old to less than 5%.
4. Sustain low level of overweight and obesity among infants and young children below five years old to less than 5%.
5. Control complications of malnutrition and manage accompanied micronutrient deficiency.
6. Create awareness about the causes and consequences of malnutrition through counseling, health education and use of mass media.
7. Contribute to the elimination of “risk factors for malnutrition”.

1.4. Risk Factors of Malnutrition:

Rapid growth of children under-five makes them the most vulnerable group to Malnutrition. Several factors could lead to the development of malnutrition and micronutrients deficiencies:

1.4.1 Socioeconomic factors

Although poverty is usually implicated for occurrence of malnutrition, this was not found to be the case in Oman. A study conducted by Ministry of Health, and the Institute of Research for Development (IRD, France) (May-August 2002) in four regions in Oman found that the socio-economic index was not significantly associated with the occurrence of malnutrition in the household. This finding however, does not rule out the probability of inadequate distribution of money and care within the household. When resources are scarce at the household level, children receive relatively lesser share of food and attention, and this may be an issue of parental awareness and education.

1.4.2 Feeding practices:

A) Inappropriate breastfeeding:

Introduction of infant formula, easy cessation of breast feeding and non exclusive breastfeeding are well known risk factors for malnutrition around the world and in Oman. The immune bodies in the breast milk protect the child from infections, and the mother's milk is hygienic, cheap and accessible at all times. Oman's policy of breastfeeding advises to start breastfeeding within half an hour after birth, exclusively breastfeed for six months and continue into the second year.

Introduction of water, infant formula, and herbal solutions in the first 6 months are common practices that should be discouraged among women who breastfeed. These may lead to diarrhea, and consequently to increased susceptibility to malnutrition. Mothers with limited income tend to economize by offering diluted milk formula to their infants. Unhygienic feeding practices in the preparation of milk formula result in frequent episodes of diarrhea and diminished absorption of food by the infant.

B) Inadequate complementary feeding practices:

Child malnutrition starts to develop in Oman at the age of 6 months, at the time of introduction of complementary foods. The aspect of care study found that almost 50% of the children at the age of 6-8 months old were fed three meals, compared to 64% of children at the age of 9-11, whereas children older than 12 months were fed less than 4 times daily. The ministry of Health in Oman and WHO recommends 3-4 meals at the age of 6-8 months, 4-5 meals at the age of 9-12 months. Frequency, quantity, quality and consistency of meals are important factors in child feeding at this age, and mothers should be encouraged to feed adequately.

1.4.3 Infections:

The study on the risk factors associated with malnutrition carried out by MoH in 2002 showed that both water contamination and diarrhea are associated with malnutrition in Oman. During illness, the child catabolizes his own tissue to produce the additional heat energy, which is lost during fever. In addition, malnutrition may adversely affect the immune status of the child. Parents often wrongly attribute diarrhea to teething, and hence they don't seek medical attention.

During infections, the child's appetite is impaired. The common and wrong practices of withholding food, reducing feeding or diluting infant formula during the episode of diarrhea could lead to malnutrition. It is important to continue feeding with increased frequency of breastfeeding during illness.

1.4.4 Maternal malnutrition and anemia:

Short maternal stature, anemia and low pre-pregnancy weight seem to be factors contributing to low birth weight infants, who are more likely to be malnourished children. Low birth intervals and large family size may contribute to the poor nutritional status of the mothers. More efforts are needed to ensure adequate weight gain and iron status during pregnancy.

1.5 Complications of Malnutrition:

1.5.1 Morbidity and mortality:

Prolonged severe malnutrition could lead to infection and septicemia, and most of the patients suffer from decline of mental functions. They may have dehydration, electrolyte imbalance, hypoglycemia, and precipitate heart failure, which may lead eventually to death if no intervention is done. Malnutrition cases suffer from reduced antigenic response due to atrophy of all thymus and thymus dependent lymphoid tissues, thereby resulting in reduced cell mediated immunity.

1.5.2 Alterations in humoral antibodies response and GI function:

Circulating immunoglobulin levels are usually normal or elevated in malnourished child due to frequent gastrointestinal and respiratory infections. However, the secretory IgA is reduced generally, recovery from infections is delayed and infections tend to be severe in malnourished child.

About half of the malnourished patients may show steatorrhea and lactose intolerance. In addition, they are 2.5 times more likely to have diarrhea than their well-nourished counterparts are.

1.5.3 Reduced learning ability and school performance:

The period of active brain growth extends from the 30th week of gestation of the human fetus to about the end of the second year of life. Under nutrition during this period, appears to adversely affect the development of the brain. Studies have indicated that malnourished children show reduced school performance and physical activity.

1.5.4 Increased susceptibility to micronutrients deficiencies:

Malnourished infants and young children are more likely to suffer from symptomatic and asymptomatic micronutrients deficiencies such as Iron, folate, B12 and zincetc.



Section - 2

Classification & Assessment

2.1 Definitions of Malnutrition

Ministry of Health in Oman follows WHO definitions of malnutrition, which categorizes it into moderate and severe. It also provides indicators for malnutrition: underweight (low-weight-for-age), wasting (low-weight-for-height), stunting (low-height-for-age) and obesity (high-weight-for-height).

The Ministry policy is to screen all children (< 5 years old): for underweight, wasting, stunting, overweight and obesity at each primary health care visit. EPI nurse carry this screen for children age (0-2) years and Triage room nurse carry it for children age (2-5) years.

This classification is available as a growth charts in the child health record, commonly known as **child Health (pink record)**

Definitions:

Underweight : low-weight-for-age

Moderate wasting : Weight /for height or length is between- 3 and -2 z-scores of the reference population.

Severe wasting : weight/for height or length is below -3 Z-score of the reference population.

Overweight : weight/for height or length is between +2 and +3 Z-score of the reference population

Obesity : weight/for height or length is over +3 Z-score of the reference population.

Stunting: low-height/length-for-age

Anemia : (children < 5 years old): Hemoglobin value < 11 g/dl

2.2 Assessment Of Children

2.2.1 Dietary & Physical activity assessment:

The designated EPI nurse will conduct nutritional assessment using (HP-214) **A** form. She will record all findings in the feeding assessment section that is included in the child health record (Pink record). In case of any deviation from the recommended practice, document it in the appropriate area.

Children from (0-6) months of age: Breast-feeding assessment done. EPI nurse will ask mother questions that are available in the nutrition assessment form for **0-6 months** (HP-214) **A**.

Children from (6 -24) months of age: Nutrition is assessed by asking the mother about the type, quality and quantity of foods, frequency, composition of main meals and snacks, as recommended by the Complementary Feeding Training Course and by filling the **nutrition assessment form for infant** (HP-214) **A**.

Children from (2 – 5) years of age: Nutrition is assessed by the assigned child nutrition focal point **(Nurse or Dietitian)** by asking the mother about the type, quality and quantity of foods, frequency, composition of main meals and snacks and assess the daily physical activity. The focal point staff should assess if the diet meets the child daily energy requirement according to the OFBDG. The focal point staff will fill the nutrition assessment form for children (2 – 5) years of age (HP-214) **B**

2.2.2 Medical History and physical examination

Physician in the primary health care facility will assess medical history of the child and do physical examination as given in the checklist below:

Checklist points for the child's medical history and physical examination

Medical history:

- Usual diet before current episode of illness
- Recently observed sunken eyes
- Duration and frequency of vomiting or diarrhea, appearance of the vomit or diarrhoeal stools
- When was the last time he passed urine?
- Birth weight
- Milestones reached (sitting up, standing, etc.)
- Immunizations
- Any history of allergy, congenital deformity or hereditary diseases.
- Any medication used such as steroids and insulin.

Physical examination:

- Weight and length or height
- Temperature: hypothermia or fever
- Thirst
- Oedema
- Severe pallor
- Signs of circulatory collapse: cold hands and feet, weak radial pulse, diminished consciousness
- Eyes: Sunken eyes or presence of corneal lesions indicative of vitamin A deficiency
- Ears, mouth, and throat: for evidence of infection
- Enlargement or tenderness of liver, jaundice
- Abdominal distension, bowel sounds, “abdominal splash” (a splashing sound in the abdomen)
- Respiratory rate and type of respiration: signs of pneumonia or heart failure

2.2.3 Biochemical Assessment

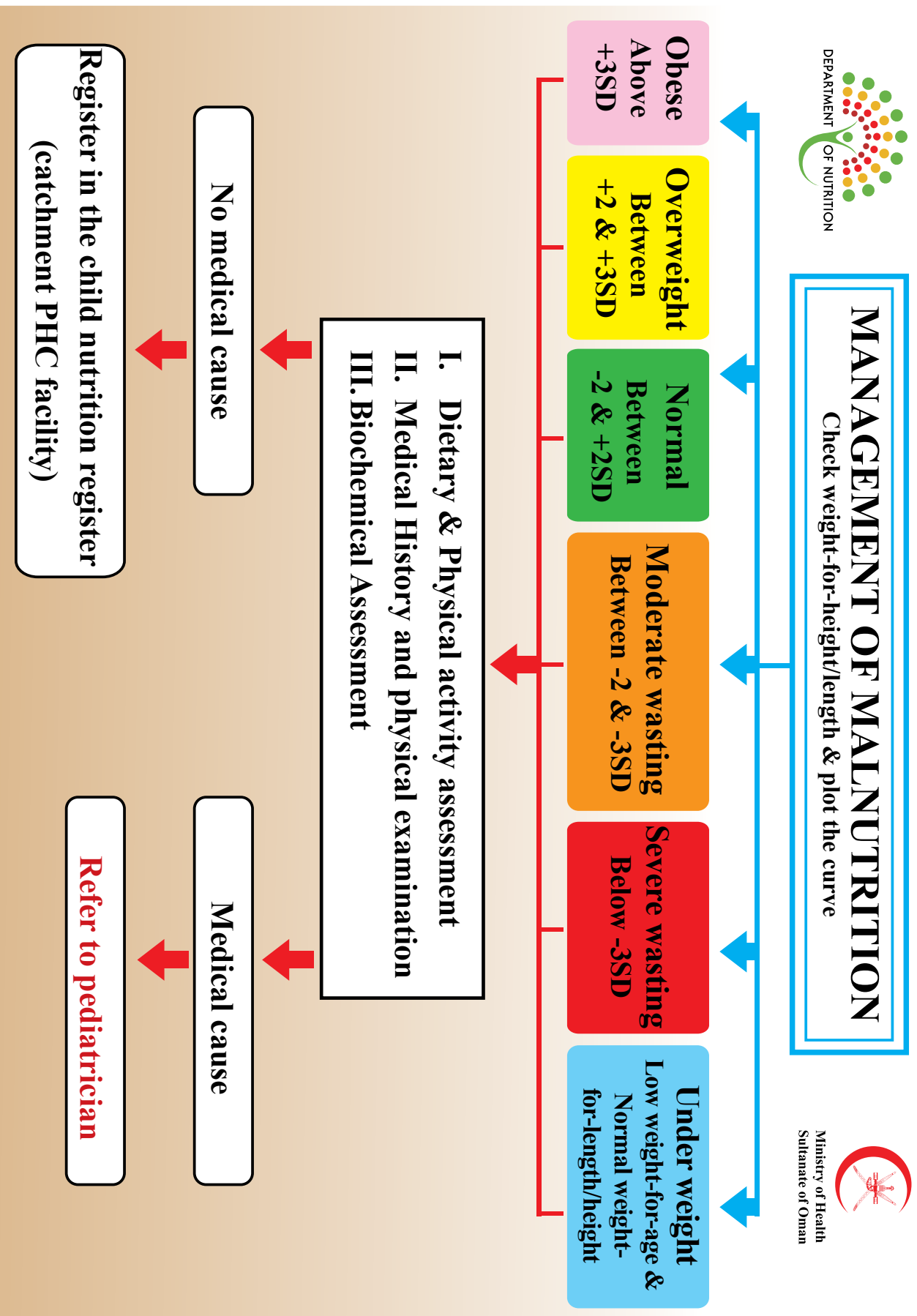
For all underweight, wasting, and stunting cases, at the first time of detection:

Test **Hb** and treat accordingly

Stool analysis for parasitic infestations, and then treat according to findings and clinical evaluation of detected cases, **three** samples (in first and two consecutive visits).

For **overweight and obese children**, laboratory examinations depending on the nutritional status, physical findings, history findings and presence of risk factors.

The Primary Health care physician will assess the blood pressure, random blood glucose level and fasting lipid levels. In cases the child is obese and with risk factors (i.e. Family history of obesity related diseases, hypertension, and elevated blood lipids) the child should be referred to a specialist for further investigation and management.



2.3 Registration:

Once the diagnosis of malnutrition is confirmed in the health institution, as per the chart of “assessment and classification of child nutritional status”, staff will register the child in the child nutrition register (RG-28) and start his/her management.

Register all malnourished children from the catchment’s area in the nutrition register (RG-28) and give them a **nutrition number**. Record the number in the child health record and follow up him/her in the primary health care facility until he/she improves.

The nutrition focal point (Nurse /Dietitian) will keep the register in her clinic.

Calculating the Age:

The age of the child is calculated by subtracting the Date of Birth of the child from the Date of his measurement, as shown in the example below:

	Days	Months	Years
Date of measurement	05	02	2015
Date of Birth	14	07	2013
Age	21	6	1



Section - 3

Management of Malnutrition

3.1 Lines of management :

Nutrition management is a major part of responsibilities of the Nutrition focal point at each health care institution.

Every case is treated individually according to the findings of the nutritional assessment. As a rule, the diet prescribed for the child should be affordable to the family, easily cooked at home, culturally acceptable and available in the local market.

All severe wasting cases should be referred to hospital for admission. Notification about the case (phone call or fax) should be sent to the Nutrition Department within 24 hours in order to follow up the case.

a - Nutritional assessment:

Using the Arabic “Nutritional Assessment” form (HP-214) A& B.

b - Medical Evaluation:

All cases at first time of detection and at follow up visit will be examined by a physician for medical evaluation and further management.

c - Investigations:

- Hb test will be done for all cases at first time of detection and treated accordingly.
- Stool analysis for parasitic infestations will be done for all cases and treated according to findings and clinical evaluation. Repeat stool sample in the two consecutive visits.
- Pediatrician orders further investigations for obese children.

d - Management of breastfeeding:

The nutrition focal point will counsel the mother on exclusive breastfeeding within the first 6 months, timely introduction of complementary foods and continued breastfeeding into the second year. Beside that, she will counsel her on frequency of feeding and how to respond to different problems that are associated with breastfeeding.

e - Complementary Feeding practices:

The nutrition focal point will counsel the mother on adequate complementary feeding practices such as frequency and composition of meals, hygienic preparation of complementary foods, nutritional quality and quantity of each meal according to the child's age. The nutritional assessment form should be used to monitor compliance.

Table (1)

Age	Texture	Frequency	Amount of each meal
0 - 6 months	Exclusive breast feeding as often as the child wants day and night	As the child wants. At least 8 times in 24 hours	
At end of 6 months	Soft porridge, well mashed vegetable, meat, fruit.	2 times per day plus frequent breastfeeds.	2-3 table spoonful each meal.
7 – 8 months	Mashed foods.	3 meals plus 1 snack plus frequent breastfeeds	Increasing gradually to 2 1/2 full coffee cup in each meal (2/3 bowl of 250ml in each meal).
9 – 12 months	Finely chopped or mashed foods and foods that baby can pick up.	3 meals plus 2 snack between meals plus breastfeeds	Increasing gradually to 3 1/2 full coffee cup in each meal (3/4 bowl of 250ml in each meal).
12 – 24 months	Family foods, chopped or mashed if necessary	3 meals plus 2 snacks between meals plus breastfeeds.	Increasing gradually to 4 full coffee cup in each meal(Full bowl of 250ml in each meal).

f - Maternal Nutrition:

The mother of a malnourished child should be weighed, her BMI calculated (weight in kgs/height in m²). If the BMI of the mother falls below 20, then she should be counseled to improve her energy, protein, and micronutrient intake.

3.1 Management at follow up visits:

Follow up of all registered cases occur in the catchment primary health care facility.

Trained nurse/dietitian will do reassessment of the child and give Dietary counsel to mothers or care givers.

Follow up visits will be planed to the child according to the *schedule of follow up visits mentioned in Table (2)*

3.2 Management of overweight and obesity:

- Physician will evaluate the child for presence or absence of co-morbidities and other nutritional deficits such as minerals and vitamin deficiencies. try to help out in understanding the social or economic factors.
- Physician, FP nurse or Dietitian will advise the family on appropriate child feeding practices and healthier eating. (Refer to national feeding policies and complementary feeding guidelines)

- Discuss with parents or caregiver about changing their lifestyle & advice for increasing physical activity.
- Refer the child to specialist or secondary care facility in case he developed any complications of obesity such as depression, respiratory/cardiac distress or hormonal disturbance....etc

Table (1) shows the schedule of follow up visits

Date of visits	Visits Schedule
5 days	If a feeding problem is detected
2 weeks	Severe wasted cases after discharge from hospital. Moderate wasted cases for the first two times Moderate wasted Cases with Anemia overweight and obesity for the first two times
4 week	Moderate wasted cases after the first two visits with improvement until becoming normal for three consecutive visits. Overweight and obesity cases after the first two visits with improvement until becoming normal for three consecutive visits.
Any time	If child develops sign of any illness

It is the responsibility of the parent institution to follow up cases with severe wasting, ensure admission and send feedback about the case to nutrition department within 24 hours.

3.3 Stunting Prevention:

Stunting: low-height/length-for-age

Stunting is defined as a height that is more than two standard deviations below the World Health Organization (WHO) Child Growth Standards median.

It is a largely irreversible outcome of inadequate nutrition and repeated bouts of infection during the first 1000 days of a child's life.

Stunting before the age of 2 years predicts poorer cognitive and educational outcomes in later childhood and adolescence and has significant educational and economic consequences at the individual, household and community levels.

What are causes of stunting?

Factors that contribute to stunted growth and development include:

1. Poor maternal health and nutrition:

Maternal nutritional and health status before, during and after pregnancy influences a child's early growth and development, beginning in-utero, e.g. intrauterine growth restriction due to maternal undernutrition accounts for 20% of childhood stunting.

Other maternal contributors to stunting include mothers short stature, short birth spacing, and adolescent pregnancy, which interferes with nutrient availability to the fetus.

2. inadequate infant and young child feeding practices

3. Repeated child infection: chronic infection or inflammation, with a possible role for food contaminant.

Recommendation

- a) Improving breastfeeding rates and decreasing the high use of infant formulas.
- b) Improving the quality of complementary foods for children aged 6-23 month
- c) Improving women's food intake (quantity and quality) along her lifecycle.
- d) Improving family and community hygiene practices, with a particular emphasis on washing hands with soap after defecation and before child feeding.
- e) Improved knowledge-management systems.

3.4 Criteria for discharge:

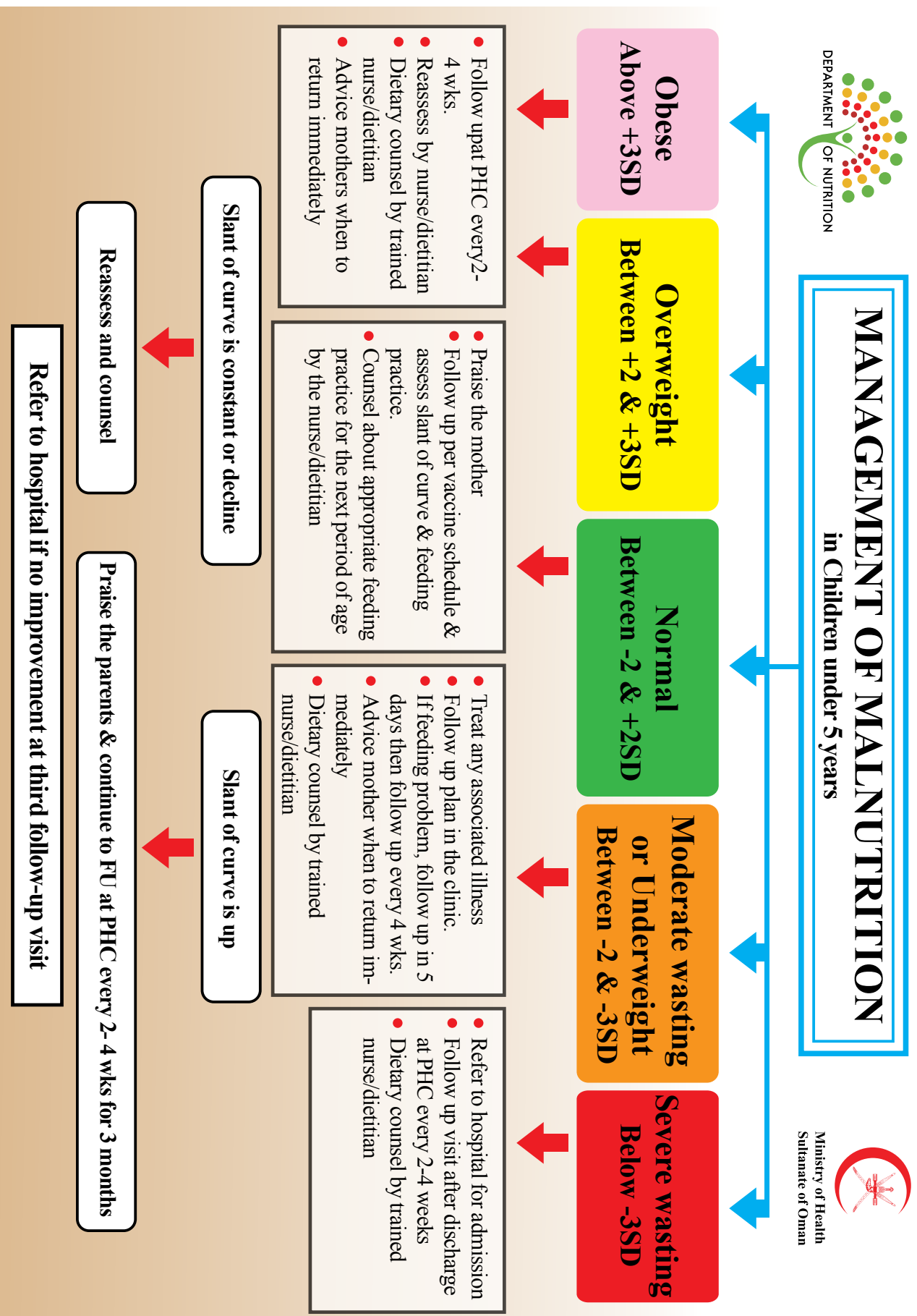
A malnourished child should continue to be followed up in the PHC until the following criteria are satisfied:

- The child is not suffering from any obvious illness or infections.
- The Mother or caretaker is able to practice the feeding recommendations and she knows when to seek medical advice.
- A Health worker is able to communicate with the CSG members in the community, and ensure follow up of the child.
- The child can eat the recommended amounts of nutritious foods at the frequency, and nutritional quality recommended.
- Gaining weight at a normal or optimum rate. Wasted children can put on weight at a rate of 5g/kg/day or more (this may require an additional 25kcal/kg/day or more, in addition to an adequate base diet)
- The child is not anemic, and has been given the required doses of vitamins and minerals.

3.5 Recommendations for child feeding at home:

The nutrition focal point should give all mothers the relevant nutrition education materials (Breastfeeding, Complementary feedings and Safe preparation for complementary foods) and advise them on the following:

- Breast feed on demand
- Exclusive breast feeding for 6 month
- Continue breast feeding for 2 years
- Timely introduction of the appropriate complementary foods, according to the national strategy of Infant and Young Child Feeding.
- Maintain good hygiene and ensure safe environment and water supply.
- Encourage compliance with the immunization services and growth monitoring.



3.6 Referring to specialist

1. Obese children with serious obesity-related morbidity; example, benign intracranial hypertension, sleep apnea, orthopedic problems, and psychological disorders. Also children with suspected underlying medical cause of obesity.
2. All cases with severe wasting referred for admission at hospital for investigations and follow up in order to reduce co morbidity and mortality i.e.:
 - a. To treat or prevent hypoglycemia and hypothermia.
 - b. To treat or prevent dehydration and restore electrolyte balance;
 - c. To treat incipient or developed septic shock, if present.
 - d. To start to feed the child.
 - e. To treat infection.
 - f. To identify and treat any other problems, including vitamin deficiency, severe anemia and heart failure.

3.7 Treatment Of Associated Micronutrients Deficiency

Iron deficiency, and specifically iron deficiency anaemia, remains one of the most severe and important nutritional deficiencies worldwide. In addition to the hematological changes, it can affect the cognitive development of children from infancy through to adolescence, damages the immune mechanisms, and is associated with increased morbidity rates. The prevalence of iron deficiency anaemia is more among children with malnutrition status.

Normal-birth-weight infants who are exclusively breastfed do not need *iron supplements for the first 4 to 6 months of life. However, when complementary* feeding begins, certainly after 6 months of age, infants need an additional source of iron to maintain adequate iron nutrition and prevent iron deficiency

3.7.1 Assessment and classification of IDA

Measure Hemoglobin level for all under nourished infants in the first visit, using the standard procedure, and follow up screening should be scheduled according to the “Classification & Management of Anaemia” chart below:



Classification & Management of Anaemia in Children under 5 years



Normal
HB level
11 g/dl or more



- Compliment mother.
- Advice mother about continuation of breast feeding, Complementary feeding and iron rich food
- Importance of regular follow up for recording weight.

Mild & Moderate Anaemia
HB level from
7 to <11 g/dl



- Do sickling test, G-6PD TEST
- Identify the etiological causes of IDA & Exclude other non-nutritional causes of anemia in suspected cases.
- Start oral iron (3 mg/Kg/ day elemental iron) single dose for 3 months (not to exceed 60 mg daily)
- Advice the mother about Complementary food and iron rich food
- Follow up in 14 days to assess the child nutrition, compliance and side effects if present
- Repeat HB test every month and Continue iron supplementation for 3 months once there is improvement in HB concentration



Refer to hospital
for further investigations & management

Severe Anaemia
HB level
Below 7 g/ dl

Follow Up Management/ Follow up all cases every month (HB TEST & NUTRITIONAL ASSESSMENT) for 3 consecutive months. If no improvement after one month of therapy, refer to specialist / or hospital for further investigations. If there is improvement, compliment mother and continue treatment for three months.

THEN CHECK THE CHILD'S IMMUNIZATION AND VITAMIN A SUPPLEMENTATION STATUS

3.7.2 Management of Iron Deficiency Anaemia

A) Dietary improvement

- The first step in this process involves obtaining, analyzing information on the various foods consumed, and on the way they are processed, mixed, and prepared for a meal.
- The practice of including iron-rich complementary foods for young children should be encouraged, both at home and in the community. Ferrous sulphate is the most widely used fortificant for modified infant formulas.
- Efforts should be directed towards counseling mothers and care givers to avoid giving cow's milk to their babies before they complete first year of age
- Improve access to diversified diets and efforts should be directed towards promoting the availability of, and access to, iron-rich foods particularly heme iron as it is not affected by dietary factors. Examples include meat and organs from cattle, fish, and poultry; and non-animal foods such as legumes and green leafy vegetables.
- Similarly, focus should be upon foods which enhance the absorption or utilization of iron e.g. oranges.
- Counsel Mothers and caregivers to avoid giving iron supplement with milk and milk products but they can give it with some citreous juices as oranges, lemons and guava).

B) Iron supplementation*

- For infants and children below 5 years of age start oral iron (**3 - 6 mg / Kg/ day of elemental iron**) single dose for 3 months. (**Not to exceed 60 mg daily dose**).
- Counsel mothers and caregivers to wait about half an hour after giving iron supplement and then they can start feeding their babies.
- There have been some reports of stained teeth after iron supplementation with some solutions. Good oral hygiene and teeth brushing after oral iron intake can prevent this condition.

For Low-birth-weight infants and premature infants:

A daily dose of **2 mg iron/kg of body weight** in the form of a liquid preparation is recommended (WHO) to all low-birth-weight and premature infants, starting when they double their birth weights or at 8 weeks after birth and continuing to 2 years of age (universal supplementation).

* A 25 mg of elemental iron equals 75 mg of ferrous fumarate, 125 mg of ferrous sulfate heptahydrate or 210 mg of ferrous gluconate.

Possible side-effects associated with iron medication

- Epigastric discomfort, nausea, diarrhoea, or constipation may appear. If these symptoms occur, supplement should be taken with meals but avoid milk and dairy products.
- Stools may turn black, which is not harmful and is a sign of good absorption of iron. Treatment should continue and physician can prescribe laxative for severe constipation.
- All iron preparations inhibit the absorption of tetracyclines, sulphonamides, and trimethoprim. Thus, iron should not be given together with these agents.

Table 3 / main sources and deficiency disorder of vitamins and minerals

Vitamins

Vitamin	Deficiency lead to	Main Sources
Water Soluble Vitamins		
Thiamine (B1)	Beri - Beri	Liver, meat, milk, cereals, nuts& legumes
Riboflavin (B2)	Anemia, cheilosis	Milk, cheese, liver, meat, eggs, grains, green leafy vegetables.
Niacin (B3)	Pellagra	Meat, fish, liver, grains & green leafy vegetables.
Pyridoxine (B6)	Anemia, Seizures	Meat, liver, grains, peanuts & beans
Biotin	Alopecia, dermatitis	Yeast, meat and made by int. flora
B12	Megaloblastic anemia	Meat, fish, cheese & eggs
Folate	Megaloblastic anemia	Liver, green vegetables, cereals & cheese
Ascorbic acid (c)	Scurvy	Citrus fruits & green vegetables
Fat Soluble Vitamins		
Vitamin (A)	Night blindness	Liver, milk, eggs, green & yellow vegetables & fruits
Vitamin (D)	Rickets	Exposure to sun, liver & cheese

Minerals

Mineral	Deficiency lead to	Main source
Iron	Hypochromic Microcytic Anemia	Liver, meat, dark green vegetables & Grains
Copper	Hypochromic Anemia	Liver, meat, oysters, grains, nuts & legumes
Zink	Achrodermatitis	Meat, grains, cheese& nuts
Selenium	Cardiomyopathy	Meat & vegetables
Chromium	Poor weight gain	Yeast & bread
Fluoride	Dental caries	Seafood & water
Iodine	Simple goiter Cretinism	Seafood, Iodized salt



Section - 4

Anthropometric Assessment

Anthropometric measurements serve three main purposes:

1. Evaluate growth velocity among pregnant women, infants, children, and adolescents.
2. To detect under-nutrition and over-nutrition in all age groups.
3. To measure change in body composition over time

Anthropometrical measurements are performed on a daily basis in all PHC Facilities for newborns, infants and young children. Those measurements aim to detect malnourished case and monitoring their growth rate and improvement. Standardization of procedures and equipment will facilitate improved disease diagnosis and management, as well as better program management.

Weighing and measuring instruments:

A. EPI clinics:

1. Weighing scale
2. Length measurer
3. Height measurer
4. Non-stretchable measuring tape.
5. Calibration blocks and rods.

B. Nutrition clinics in primary health care institutions:

1. Weighing scale
2. Length measurer
3. Height measurer
4. Calibration blocks and rods.
5. Non- Stretchable measuring tape.

4.1 Measurement Techniques:

4.1.1 Measuring weight:

Take Weight measurements before height measurements. All infants and children less than 36 months old are weighed in the arms of their mother or a nurse. Try to comfort the child before measuring him.

Weighing children held by their mothers (<36months):**A) Weighing infants using the solar uniscale:**

The Uniscale allows young children to be weighed in the arms of their mother or a nurse. The computer inside the scale automatically subtracts the weight of the mother from the weight of the child and mother together and then shows only the weight of the child.

Turn on the scale, ask the nurse or mother to step on the scale. Make sure the mother's feet or clothes do not cover the switch window or the display. The mother's weight will show on the display.

While the mother is still on the scale, pass your foot across the switch window. The display will show [0,0], and a picture of mother carries baby. At this point, ask the mother/nurse to step off the scale, zero the scale, and then ask her to step on again. The scale will give the reading of the baby's weight.

B) Weighing infants using the battery operated uniscale:

This scale (seca 881) is a modified version of the Solar Unicef weighing scale, and has a maximum load of 200 Kg's. It was the standard weighing scale supplied to the Ministry of Health institutions.

Before using the new scale make sure that the right type of battery is used, do not drop the scale or subject it to violent shocks (for example do not transport it in a car on a rough road). Do not try to repair it yourself. In the event of the scale breaking, contact the Department of Supplies and Equipment, Directorate General of Engineering.

When the battery is low the word "batt" appears on the screen.

To change the battery: carefully turn over the scale so that the base is accessible. Press the closure of the battery compartment in the direction of "Battery" and open the cover. Take the holder out of the packaging and connect the cable to it, then place the holder in the battery compartment. Close the cover and then turn the scale back up right away.

The scale is set for weighing in pounds. Make sure that you change it to kilograms before using it in the clinic.

To turn on the scale, step on it lightly.

SECA 8.8.8.8.8 and 0.00 will appear consecutively on the display. Then the scale automatically switched to 0 and ready to be used.

Ask the mother to stand on the scale and keep still.

Have your papers and pencils ready. Read the weight and record it at the same time.

To weigh the child:

With the mother standing on the scale, press on the mother-and-baby key to activate it: the scale will store the weight of the adult and the display returns to [0.00] and [TARE] appear on the display.

Hand in the child to the mother: in this case the sign [-----] will appear on the display.

The scale will determine the weight of the child. Wait until the value is stable for about 3 seconds. In that case, the display will be retained and will not jump because of child's movements.

[HOLD] and an arrow pointing to the mother-and-baby symbol may appear also on the display.

If several children are weighed consecutively, the same adult should perform the measurements and his/her weight does not change.

To switch off: press the mother-and-baby key again, or leave the scale untouched for a few seconds.

4.1.2 Measuring length:

All children up to the age of 24 months should be measured lying on their back (Supine length taken). Do not forget to take pampers, and the shoes off. Make sure that the child is relaxed or at least not crying throughout the measurement. Try not to prolong the measurement time for restless or crying children.

Two observers are required to take the measurement. The mother can stand between the two observers to hold the child's hands and comfort him/her to prevent a restless child.

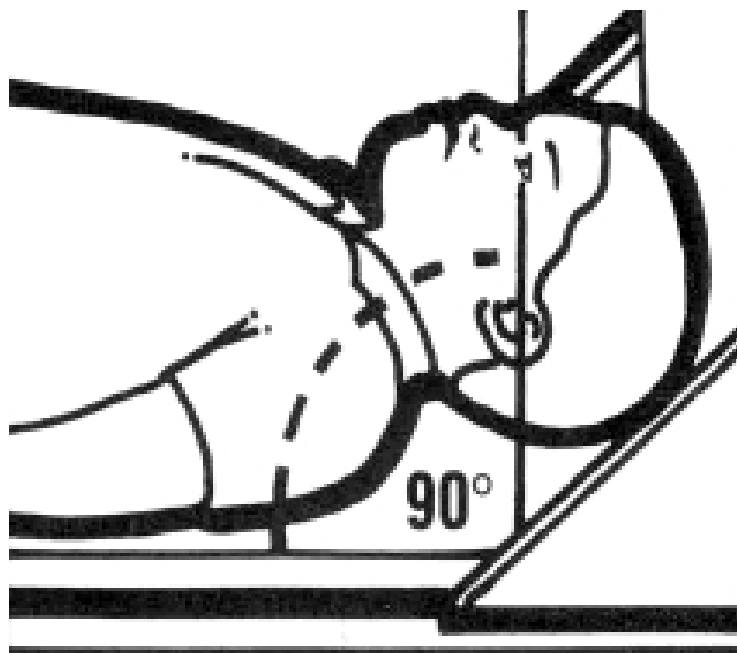
To take the measurement, a helper should stand behind the child, holding the head in the Frankfort plane throughout the measurement procedure. The child laid on the measuring board such that the head is positioned in the Frankfort plane (the lower orbits of the eyes on the same vertical plane as the ear holes). Observer 2 also ensures that the top (vertex) of the head maintains contact with the vertical headboard.

The shoulders and buttocks should be resting on the board and the shoulders and hips are aligned at right angles to the long axis of the body.

Observer 1 ensures that the child is relaxed, or at least not reaching the spine or bending the knees. This observer holds the feet such that the ankles are at right angles and toes not bending over to interfere with the footboard.

The footboard then moved into contact with the heels and slight pressure applied to the ankles to straighten the legs and extend the spine.

The measurement is recorded to the last completed unit (0.1cm), and one decimal place. With very young children, the first observer may have to apply downward pressure to the knees to prevent flexion.



4.1.3 Measuring height:

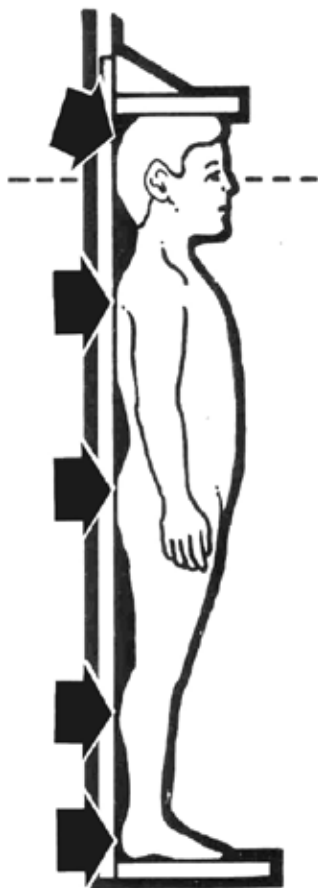
All children above the age of 24 months, and adults are measured standing up (height). Ask the child to take off the shoes and socks and measure. Two observers are required to measure height.

Observer 1 makes sure that the board and feet are against the marks, and the feet of the child are in the right position.

Observer 2 checks that the feet are together, the knee is straight, and the heels, buttocks and shoulder blades are in contact with the vertical surfaces of the height measurer. The arms should be hanging loosely, at the sides, with palms facing the thighs.

Observer 1 asks the child to take a deep breath and stand tall, and he observes that the Frankfort plane is horizontal while lowering the headboard until it touches firmly the head. Care to be taken not to bend the headboard. The child's head should be against the board.

Observer 1 reads the measurements with his eye level at the headboard. The height is recorded to the last completed unit (mm) with two decimal places (e.g. 25.50 cm's).



4.2 Calibration:

The weighing scale, length and height measuring should be calibrated on a weekly basis, using the calibration materials of standard weights and lengths provided.

Calibration of the uniscale done by weighing and recording known weights using the same procedure for measuring children. If the measurement deviates by more than 100g, than the uniscale to be replaced immediately.

Calibration of the length and height measures done by measuring a rod of a known length by a method similar to the way that a child is measured. If there is more than 0.5 cm difference, the instrument should be set to zero, and the measurement taken again. If the problem persists, the instrument to be sent to the Engineering Department (MoH) to be fixed or replaced.

Calibration are recorded in standard calibration from which to be display in a visible position close to the uniscale, preferably in the nutrition/or EPI clinic. Filled forms should be filled for reference and monitoring and it can be discarded after 6 months.



Section - 5

Reporting and Surveillance System

5.1 Introduction

The designed nutrition reporting system is aimed to help program managers monitor the progress in the control of wasting, underweight, overweight and obesity among children below 5 years of age. It also assists in monitoring the quality of the services and identifies gaps of service delivery and resources, and it identifies the areas that need intervention on macro and micro levels. Program managers and service providers can use the system to make decisions related to management follow-up as well as the organization of the nutrition program and ensure optimal feeding practices.

5.2 Guidelines for filling up the child nutrition register:

The child nutrition register is designed to follow-up all malnourished cases for children in the primary health care facility. It consists of registry sheets for 15 visits for each child, and an instruction page on how to fill up the information in each space

The Dietitian or Focal Point nurse at the health institution will maintain the register.

Only Omani children from the catchment area of the health institution shall be entered into the register.

If a malnourished child is from outside the catchment area, initial checkup conducted and the child referred for follow up in the parent institution. A feedback form sent from the detecting institution to the parent institution.

The register used only for children less than 5 years old. If the child is more than 5 years old, the mother should be counseled, given proper nutritional advice without making entries in the register.

Use (weight-for-height/length) criteria to diagnose cases with wasting, overweight and obesity, as explained previously in this guideline.

Both moderate and severe cases of Underweight are diagnosed through measuring (weight-for- age).

Each child is allocated a nutrition number as follow:

Assigning a nutrition number

- Parent institution number / **mm** / **yy** /**serial number**
- The institution number is the code number used for MOH statistics.
- The month and year assigned according to the dates of diagnosis.
- The serial number starts from **001** each month in each institution.

- Example: The 5th malnourished child registered on the **17th of May 2013** in Sharadi Health center has the number: **151/05/13/005**
- Once a nutrition number is assigned, it should be noted on the child health record.

5.3 Completing the register:

The Dietitian or Focal Point nurse at the health institution will maintain the register and follow up cases. At the beginning of each month, use a new page in the register and leave an extra page at the end of each month for cases detected and reported by other health facilities. Each page in the register designed for two cases. Personal details of the child and admission details are entered on the first visit in specific spaces located on the left side of the register.

FIRST VISIT:

Identification details : Should be written for easy contact and follow up

First name	Father	Gr father	Tribe	Full Mother name
Date of registration	Date of birth	Nutrition Number	Patient Number	Phone number (1) Phone number (2)
Sex	length at birth	Weight at birth	Head Circumference at birth	RG23 number Address/ Sheikh
M F				

Fill up the following child details as the box show:

1. First Name
2. Father's name
3. Grand Father's name
4. Tribe name
5. Mother full name
6. **Date of Registration:** This is the date at which the child was first diagnosed/ identified in the parent health institution, recorded in the box below the label in the format of dd/mm/20yy. If the child was referred from another health institution, the date of diagnosis of the referring health institution should be written.
7. **Date of Birth:** The date of birth transcribed from the Child health record in the box below the label. Confirm it with the date of birth registered in the child health register.

8. **Nutrition Number:** As explained before
9. **Patient Number:** Number of Patient or Child in the sticker from medical record identification / No. of child in health institute
10. Sex: Circle the initial corresponding to the child's gender (M=Male, F=Female) in the box below the label.
11. Length at birth: record the length in centimeter documented in the child health record in the box below the label
12. Weight at Birth: The weight in kilogram documented in the child health record, record it in the box below the label. Confirm that the weight recorded in the child health register (RG-23) is the same.
13. Head circumference at birth: the head circumference in centimeter documented in the child health record recorded in the box below the label.
14. RG 23 number: is recorded in the box below the label
15. Contact details: Specify the contact details; address of the child, sheikh, available phone numbers. In each visit verify and update the contact phone number.

Details at registration:

1. **Age at Registration:** Calculate the age in months and record it in the box below the label "age at admission". The age of the child is calculated by subtracting the date of birth from the date of the measurement of the child (refer to the management guideline manual).
2. **Weight at Registration:** When the child registered for the first time, weigh him/her. Record the weight in Kg to the nearest decimal point in the box below the label "weight at admission".
3. **Height/length at Registration:** When the child registered for the first time, measure his/her height/length. Record the height/length in cm in the box below the label "**Height/length** at admission".
4. **Nutrition status:** Plot the weight-for- height/length for the child in the child health record. Once you diagnose the case as Normal for weight /height or length, Plot the weight-for -age for the child in the child health record. If it falls in the orange zone, circle "moderate underweight", if falls in the red Zone of the chart circle "severe underweight"
5. **Color Code:** Draw an "X" on the colored circle corresponding to the nutritional status of the child in the child health register (RG-28).
6. **Diarrhea:** Note down the occurrence of diarrhea at time of registration of the child by asking the mother, and circle yes or no under the diarrhea criteria listed in the form.

At Registration					
Age	Weight	height/ length	weight-for-height /length (SD)	Malnutrition Level	Color Code
Months	Kg	Cm	SD	obese overweight Mod.wasting Sev.wasting	○ ● ● ● ● ●
Diarrhea	Oedema	other Diseases	weight-for-Age (SD)	Mod underweight Sev underweight	● ● ● ● ● ●
Yes No	Yes No			Hb Level	
			 gm/dl (> 11 gm/dl) Nor (9 to <11 gm/dl) Mid (7 to < 9 gm/dl) Mod (< 7 gm/dl) Sev		
"Lactation Assessment / Counselling"					
"C F Assessment / Counselling"					
"Assessment outcome Probable cause of malnutrition"					
investigations	BL Pressure	Hb..... gm/dl	RBS	Mg/dl	
	s.cholesterol	stool	urine microscopy		
Health assessment					
key messages					
specify action if any					

7. **Edema:** note down if there is sign of pitting bilateral peripheral edema at time of registration, and circle yes or no under the edema specified space. Peripheral (pitting) edema is sign of severe wasting.
8. **Other disease:** specify any other disease that could be the cause for this malnutrition status.
9. **Hemoglobin level:** When the child registered for the first time, measure the hemoglobin level and record the result in gm/dl in the blank left next to the hemoglobin level. Specify the range under which the child is, by circling the green range for normal level, the blue range for mild level, the orange range for moderate level and the red range for severe level

Lactation assessment & counseling:

The mother to be counseled by the trained Dietitian or Focal Point nurse (lactation counselor) and the following items are checked:

1. Start breastfeeding within one hour of birth.
2. Breastfeeds on demand.
3. No difficulties reported with Breast-feeding (pain, sore nipples).
4. No infant formula given.
5. No teas/sugar water/ water given if child is in the first 6 months of age.
6. No pacifiers used.
7. Family encourages breast-feeding.
8. Drugs contraindicated to breastfeeding not used by the mother.

Write the code numbers of the items that found to be inappropriate in the space provided or write the items in the corresponding space. In subsequent visits, these items should be rechecked and the mother counseled accordingly.

Complementary feeding assessment & counseling:

Use the (HP-214) form to assess the child for Complementary feeding (refer to the [Arabic nutrition assessment form](#)):

- Did the mother or caregivers give the child complementary food after 6 months of age?
- What are the consistency, quantity and frequency of main meals/snacks given to the child on the day before admission?
- Does the quality of the meals given comply with the complementary feeding policy?
- Was the health worker counseled mother for complementary feeding prior to admission?
- What were the main complementary feeding counseling messages the health worker gave them to mother?
- How many meals and snacks did the child consume on the day prior to the admission?
- What was the composition of these meals?
- Refer to the Guidelines for infant feeding (Arabic) and HP -214.
- What nutrients are deficient in the child diet?

Outcome of Feeding Assessment and Probable Cause of malnutrition

Briefly write the conclusion of feeding assessment results in the space provided.

Select and record the factors that are the most likely cause/s of malnutrition in the case of the particular child, from the following list:

1. Lack of access to food items or excess intake of unhealthy food.
2. Frequent illness
3. Lack of awareness
4. Inadequate care
5. Unhealthy food e.g. fast food
6. Inadequate physical activity

7. Low family income
8. Use of breast milk substitutes
9. Food high in fat and sugar
10. Others, specify

Investigations:

Dietitian or Focal Point nurse will record results of all investigations that are done for the child at the time of registration in this area.

Hb level, urine (if needed) & stool microscopy checked for all children who are diagnosed as undernourished cases.

Blood pressure, serum cholesterol, random blood sugar should be checked for all children who are diagnosed as obese cases

Health and psychosocial development assessment.

All malnourished children when diagnosed for the first time, referred to the physician by Dietitian or Focal Point nurse for health assessment, and the outcome of this assessment recorded in the specified area in the register.

The Dietitian or Focal Point nurse also, is responsible to check the child's development such as motor and communication achievements, his/her ability to play and use objects according to his/her age and to refer to physician to give recommendations accordingly.

The Dietitian or Focal Point nurse is responsible to follow up and record the outcome of this assessment.

Key messages:

The Dietitian or Focal Point nurse will explain to mothers or caregivers the Key messages mentioned in the child health record based on child's age and record it in the register.

Specify action if any:

Actions such as referral, age above 5 years, transfer out and died should be identified and recorded.

FOLLOW UP VISITS:

- **Date:** Record the date of visit under the corresponding visit number. Start at the first visit after registration.
- **Age:** Record the age of the child in months. The easiest way to do this is to add the duration between visits to the age at the earlier visit.
- **Weight:** weigh the child and record the weight in Kg in the space provided under the corresponding visit.
- **Length/Height:** measure the height/length of the child and record it in cm in the space provided under the corresponding visit.
- **Head circumference:** measure the head circumference of the child and record it in cm in the space provided under the corresponding visit.
- **Malnutrition Level, Color Code:** Plot the child weight –for height (length) and weight – for age on his/her chart and mark with an “X” the nutritional status level and the corresponding colored circle.
- **Diarrhea:** if the child has diarrhea, do stool microscopy to exclude any parasites, and fill the lab result in the specified space. The occurrence or absence of diarrhea should be noted in each visit, by circling yes or no in the specified place in the register form.
- **Edema:** peripheral edema is sign of severe wasting.
- **Hb Level:** Assess the Hb level, if recommended for this visit. Specify the conditions e.g. no anemia, mild, moderate, or severe
- **Health Status:** Specify if the child has any episode of acute respiratory infection (ARI), Diarrhea, or any other illness and record any other recommendations given by the physician.
- **Nutrition Counseling:** Write in brief the content of messages provided to the mother.
- **FUP Date:** Print the date given for the next visit.

Finally explain the date of the next visits according to the health status

N.B RE ADMISSION IN THE REGISTER

In case the child developed recurrence of malnutrition after being in the normal zone (green zone) for 3 visits and discharged from the nutrition clinic, he/she should be reentered in the register in the month of recurrence using the old nutrition number. Enter as a remark in the page of previous registration that the child has been reentered in the page of month of recurrence.

	FU visit 1	FU visit 2
Date	day/mm/yy	day/mm/yy
Age	months	months
Weight	Kg	Kg
Height/Length	Cm	Cm
Head Circumference	Cm	Cm
"Health status"		
Diarrhea	Yes No stool results.....	Yes No stool results.....
Nutritional status weight-for-height/length	SD obese overweight Nor Mod.wasting Sev.wasting	SD obese overweight Nor Mod.wasting Sev.wasting
color code		
	...Nor ModUWt SevUWt   	...Nor ModUWt SevUWt   
Oedema	Yes No	Yes No
Hb Level	gm/dl (.....condition)	gm/dl (.....condition)



Annexes

Monthly Report for child Malnutrition

Cases to be reported	Age Group							
	Below 1 Year		1 Year to below 2 years		2 Years to Below 3 Years		3 Years to Below 5 Years	
	Males	Females	Males	Females	Males	Females	Males	Females
A: Underweight Cases								
New Underweight Cases								
• Children who were normal and developed Moderate Underweight during the current month								
• Children who were normal and developed Severe Underweight during the current month								
Old Underweight cases								
• Underweight Cases who become worse during the current month								
◇ Moved from Moderate Underweight to Severe Underweight								
Improved Underweight cases								
◇ from Severe Underweight to Moderate Underweight								
◇ from Moderate Underweight to Normal								
◇ from Severe Underweight to Normal								

B: Wasting cases

New Wasting Cases								
• Children who were normal and developed Moderate wasting during the current month								
• Children who were normal and developed Severe wasting during the current month								
Old Wasting cases								
• Cases who become worse during the current month								
◇ Moved from Moderate wasting to Severe wasting								
• Cases who improved								
◇ from Severe wasting to Moderate wasting								
◇ from Moderate wasting to Normal								
◇ from Severe wasting to Normal								

Directorate General of Primary Health Care - Department of Nutrition

Monthly statistical report on child Feeding pattern and nutrition status

From the child health register (19 months back)

Record data of children in your register aged 19 months ie. Children born 19 months ago.
 For example, if this your monthly report for January 2012 you should enter the data of the children (in your register) born in July 2010.
 Calculation of 19 months back for each month: by going back 6 months before the same month in the previous year.
 For example, if your monthly report for June 2012: the same month of the previous year is June 2011, and 6 months before will be December 2010, so you should enter the data of the children (in your register) born in December 2010.

Total Children on register	
Children who have died	
Children transferred out to other institutions	
Children who have left country	
Children remaining in your catchment area (TARGET CHILDREN)	

I. Number of target children according to type of Feeding

	Breast Feeding		Formula Feeding		Semisolids & complementary foods				Total	use of bottle
	EB	PE	IF	BF + IF	BF + S	IF + S	BF+ IF+ S	S		
At Birth										
At 2 months										
At 4 months										
At 6 months										
At 9 months										
At 12 months										
At 18 months										

EB: Exclusive Breast Feeding, PE: Predominant Breast Feeding, IF: Infant Formula Feeding

BF: breastfeeding

S: Semisolids and solids. Use of bottle : Irrespective of type of feeding

II. Number of target children according to nutritional status and Hemoglobin level

	Nutritional Status		Total
	Normal weight	LBW (wt < 2.5 kg)	
At Birth			

	Nutritional Status								According to Hb level				Total
	Normal Weight	Moderate Underweight	Severe Underweight	Moderate wasting	Severe wasting	Overweight	Obesity	Total	≥ 11 gm/dl	from 9 to <11 gm/ dl	from 7 to < 9 gm/ dl	< 7 gm/ dl	
At 2 months													
At 4 months													
At 6 months													
At 9 months													
At 12 months													
At 18 months													

Monthly Statistical Report from Nutrition Clinic

[illegible]

سلطنة عمان Sultanate of Oman

Ministry of Health
Sultanate of Omanوزارة الصحة
Ministry of Healthالمديرية العامة للشئون الصحية Directorate General of Health Affairs
دائرة التغذية Department of Nutritionإستمارة تقييم النظام الغذائي
للأطفال دون سن الثانية

ضع علامة () أمام الممارسة التي يتم تطبيقها في تغذية الطفل سجل الرسالة الغذائية للأم في المكان المخصص إذا كانت بحاجة إلى رسالة أو هنيء الأم على ما تقوم به إذا كان صحيحاً

إسم الطفل :	تاريخ الميلاد :
رقم سجل صحة الطفل:	الحالة الغذائية للطفل :

* إذا كانت الإجابة على أي من الأسئلة بـ (لا) فتحوّل إلى أخصائية المشورة في الرضاعة الطبيعية.
١- زيارة الأسبوعين ، الشهر الثاني والشهر الرابع :-

م	الممارسات الغذائية	زيارة الأسبوعين	زيارة الشهر الثاني	زيارة الشهر الرابع
		نعم	نعم	نعم
		الرسالة المقدمة	الرسالة المقدمة	الرسالة المقدمة
١	هل يتم إرضاع الطفل من حليب الأم ؟			
٢	هل يتناول الطفل أي شيء غير حليب الأم ؟			
٣	هل تم تقديم المشورة في الرضاعة الطبيعية للأم ؟			

٢- زيارة الشهر السادس ، الشهر التاسع ، الشهر الثاني عشر والشهر الثامن عشر.

م	الممارسات الغذائية	زيارة الشهر السادس	زيارة الشهر التاسع	زيارة الشهر الثاني عشر
		نعم	نعم	نعم
		الرسالة المقدمة	الرسالة المقدمة	الرسالة المقدمة
١	هل يتم إرضاع الطفل من حليب الأم ؟			
٢	هل تناول الطفل أمس ٣ وجبات سميكة القوام ؟ (يمكن إستخدام صورة الأطعمة التي توضح سمكها)			
٣	هل تناول الطفل أمس طعام من مصدر حيواني ؟ (لحم / سمك / طيور / بيض)			
٤	هل تناول الطفل أمس أي من منتجات الألبان ؟			
٥	هل تناول الطفل أمس أي من المكسرات أو الحبوب ؟			
٦	هل تناول الطفل أمس خضراوات خضراء داكنة أو برتقالية أو فاكهة برتقالية ؟			
٧	هل تناول الطفل أمس أي نوع من الخضراوات أو الفاكهة ؟			
٨	هل تناول الطفل أمس العدد الكافي من الوجبات الأساسية والوجبات الإضافية المناسبة لعمره ؟			
٩	هل كمية الطعام الذي تناوله الطفل أمس في الوجبات الأساسية مناسبة لعمره ؟			
١٠	هل يتناول الطفل طعامه من طبق منفصل أم من طبق العائلة ؟			
١١	هل قامت الأم أو المسؤول عن رعاية الطفل بمساعدته في تناول طعامه ؟			
	المجموع			

HP-٢١٤ A

* تطبق هذه الإستمارة في عيادة التحصينات لجميع الأطفال دون سن الثانية
* دوني رقم الرسالة المقدمة من خلفية الإستمارة.

إرشادات ملأ إستمارة التقييم الغذائي

١. ألقى التحية على الأم وأخبرها بأنكما سوف تتحدثا عن تغذية الطفل.
٢. ملأ البيانات الخاصة بأسم الطفل ، رقم سجل صحة الطفل ، تاريخ ميلاده ، والحالة الغذائية للطفل (طبيعي أو سوء تغذية متوسط أو شديد) ملأ بيانات الطفل بحسب الزيارة.
٣. أطلب أن ترى منحنى نمو الطفل ولاحظ حالة الطفل وإذا ماكان منحنى النمو في إرتفاع أو إنخفاض.
٤. أبدأ باسم الأم في الحديث لتقل : فلنتحدث عن ماذا (إسم الطفل) تناول أمس من طعام.
٥. إستمر بقول : إن راجعنا طوال يوم أمس قولني لي: ماذا تناول (إسم الطفل) أمس من شراب ، وجبات ، أطعمة أخرى ، ماء أو رضاعة طبيعية.
٦. ضع علامة () على إستمارة التقييم الغذائي أمام الممارسات التي يتم تطبيقها بشكل مناسب بحسب العمر وإن كانت لا تنفذ الممارسة يوضع رقم الرسالة التثقيفية التي تقدم لها من قائمة الرسائل الأساسية للتغذية التكميلية.
٧. أعرض عليها الصورة التي توضح سمك الطعام الخفيف والمتماسك (مثل العصيدة ، الحساء ،...) أسألها عن طعام طفلها يماثل أي طبق في الصور.
٨. إذا ذكرت الأم بعض الأطعمة مثل العصيدة أسألها عن مكوناتها.
٩. أستكمل : ماهو الطعام أو الشراب أو الرضاعة الطبيعية التالية التي تناولها (إسم الطفل) أمس " هل (أسم الطفل) أكل أو شرب أي شيء آخر في ذلك الحين؟ "
١٠. تذكر أن تراجع كل أحداث أمس مع الأم لتساعدنا أن نتذكر كل الأطعمة والمشروبات والرضاعة الطبيعية التي تناولها الطفل.
١١. أستمر في تذكير الأم باهتمامك أن تعرف ماتناوله الطفل أمس (حيث يمكن أن نتحدث الأم عن كل ما يتناوله الطفل من أطعمة ومشروبات بصفة عامة).
١٢. وضح أي نقطة غير واضحة أو إستفسر عن أي معلومات أخرى تحتاجها الأم.
١٣. إمتدح الأم على الممارسات الصحيحة التي تطبقها في تغذية الطفل وشجعها على إستمرارها. قدم لها ٢-٣ رسائل أخرى حسب الحاجة وناقش معها كيفية تطبيقها.

الرسائل الأساسية للتغذية التكميلية :

١. الرضاعة الطبيعية لمدة عامين كاملين تساعد الطفل على النمو الصحي والسليم.
٢. البدء في تقديم أطعمة أخرى بالإضافة إلى حليب الأم منذ الشهر السادس يساعد الطفل على النمو الصحيح.
٣. الغذاء السميكة الذي يبقى في الملعقة يعطي الطفل طاقة أكبر.
٤. الأطعمة حيوانية المصدر مفيدة جداً للطفل لتساعده على النمو الطبيعي.
٥. البازلاء ، الفول ، الدال (العدس) ، المكسرات والبذور تعتبر مصدر غذائي جيد للأطفال.
٦. الأوراق النباتية الخضراء الداكنة والخضراوات برتقالية اللون تساعد الطفل على مقاومة العدوى وضرورة لسلامة العين.
٧. ينمو الطفل ويحتاج إلى ثلاث وجبات أساسية يومياً بالإضافة إلى الوجبات الخفيفة: أعطه أنواع مختلفة من الطعام.
٨. الطفل في مرحلة النمو يحتاج إلى كميات متزايدة من الطعام.
٩. الطفل الصغير يحتاج أن يتعلم كيف يأكل بالتشجيع والمساعدة مع كثير من الصبر.
١٠. تشجيع الطفل على الأكل والشرب خلال وبعد المرض يساعده أن يتمثل للشفاء سريعاً.

Annex (3): Arabic nutrition assessment form**إستمارة تقييم النظام الغذائي للأطفال فوق سن الثانية****الاطفال فوق سن الثانية**

استمارة تقييم النظام الغذائي للأطفال فوق سن الثانية المصابين بسوء التغذية

ضع علامة (√) أمام الممارسة الغذائية التي يتم تطبيقها في تغذية الطفل

سجل الرسالة الغذائية للأم في المكان المخصص إذا كانت بحاجة إلى رسالة أو هنيئ الأم على ما تقوم به إذا كان صحيحا

اسم الطفل:				تاريخ الميلاد:	
تاريخ الزيارة:				رقم سجل صحة الطفل:	
عمر الطفل في يوم الزيارة:				الحالة الغذائية للطفل:	
م	الممارسات الغذائية	نعم	الرسالة المقدمة	نعم	الرسالة المقدمة
١	هل منحني النمو متجه لأعلى؟				
٢	هل يبدأ الطفل يومه باكرا بتناول وجبة الإفطار وينتظم في الوجبات الأخرى؟				
٣	هل تناول الطفل أمس الحليب ؟ كم كوب؟				
٤	هل تناول الطفل أمس البطاطا أو المعكرونة أو الحبوب أو الخبز (يفضل الغنية بالنخالة) وما المقدار؟				
٥	هل تناول الطفل أمس أي نوع من الخضروات الخضراء داكنة اللون مثل السبانخ البقدونس ، والملوخية؟ أو خضروات برتقالية اللون مثل: الجزر؟ أو خضار أخرى مثل: البطاطا الحلوة، الفلفل الحلو، الطماطم، والزهرة؟ كم الكمية؟				
٦	هل تناول الطفل أمس أي نوع من الفاكهة الغنية بفيتامين ج مثل: الحمضيات، الأناناس، الجوافة؟ أو الفاكهة صفراء/برتقالية اللون مثل: المانجو، البابايا، الخوخ؟ أو فواكه أخرى مثل: الموز، البطيخ، الشمام، العنب، التفاح وغيرها؟ كم الكمية؟				
٧	هل تناول الطفل أمس طعام من مصدر حيواني؟ (لحم/سمك/ طير/ بيض)				
٨	هل يتناول الطفل أي نوع من البقوليات مثل: العدس، الفول، الفاصوليا؟ (طازجة/ مجففة/ معلبة)				
٩	هل تناول الطفل أمس أي من المكسرات أو الحبوب؟				
١٠	هل تناول الطفل أمس أي نوع من مشتقات الحليب مثل: الروب، اللبن الرايب، الحين؟				
١١	هل يتم منع الطفل عن الأطعمة العديمة من القيمة الغذائية مثل السكريات والمشروبات الغازية؟				
١٢	هل يتناول الطفل الماء النظيف؟				
١٣	المقويات و الفيتامينات هل يتناول الطفل أي مقويات من المعادن أو الفيتامينات؟ وهل يتناول الأطعمة المدعمة بالفيتامينات والمعادن؟				
١٤	هل قامت الأم أو المسؤول عن رعاية الطفل بمساعدته في تناول واختيار طعامه؟				

تطبق هذه الاستمارة في عيادة التغذية لجميع الأطفال المصابين بسوء التغذية دون الخامسة من العمر

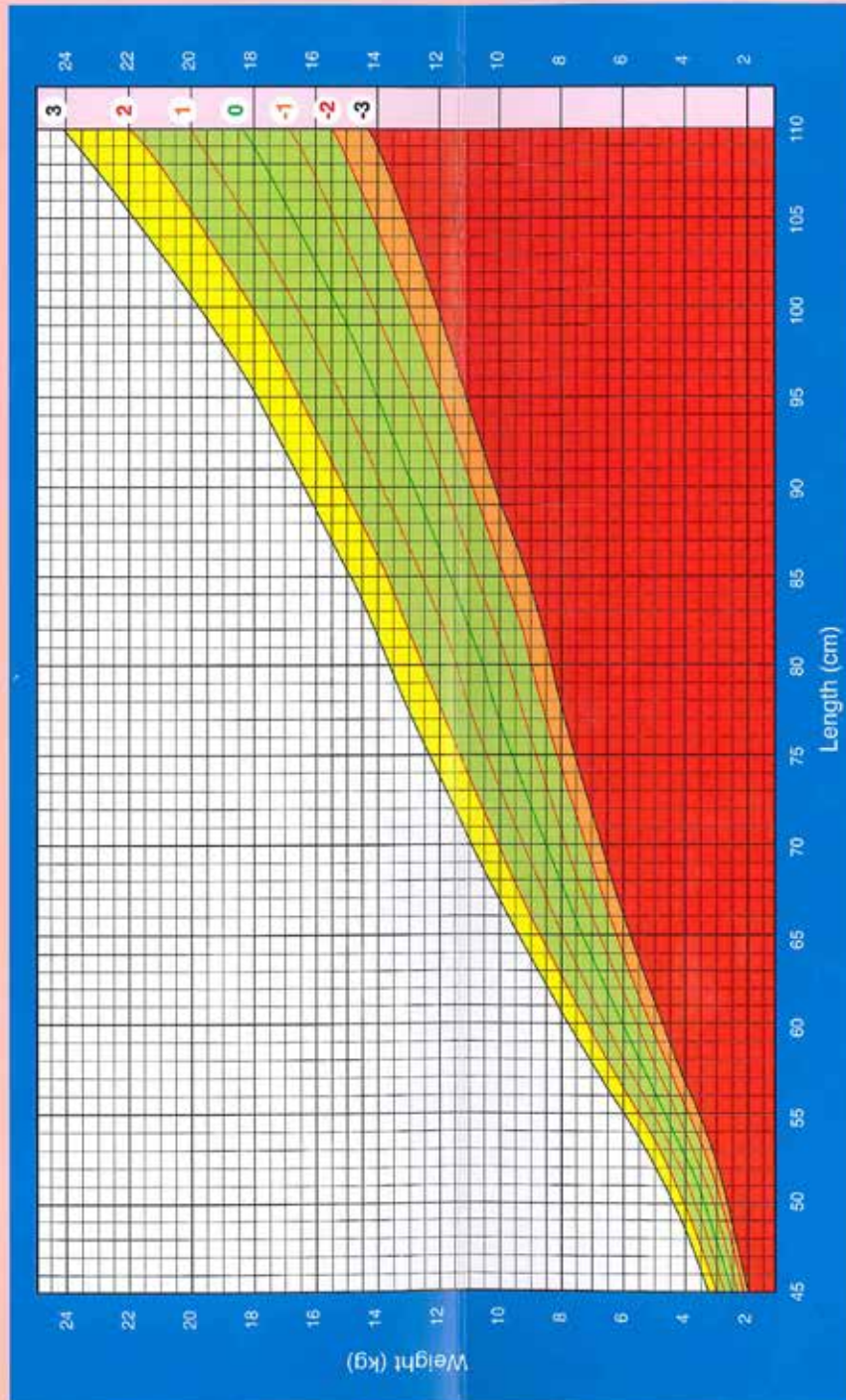
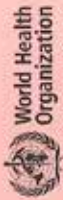
(HP-214) B

[illegible]

[illegible]

Weight-for-Length BOYS

Birth to 2 Years (z-scores)



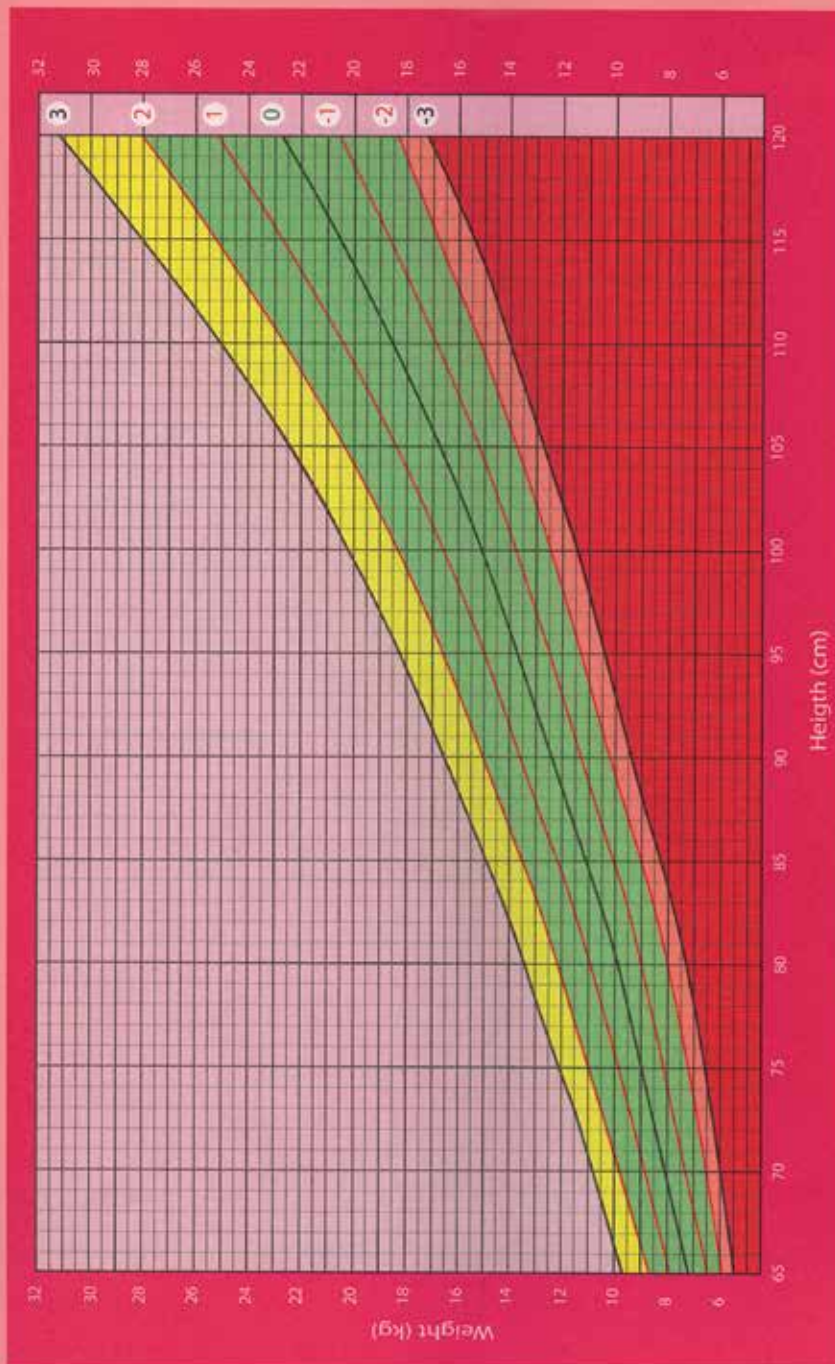
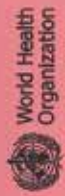
WHO Child Growth Standards

Remarks :

Child Nutrition No.
(RG 28)

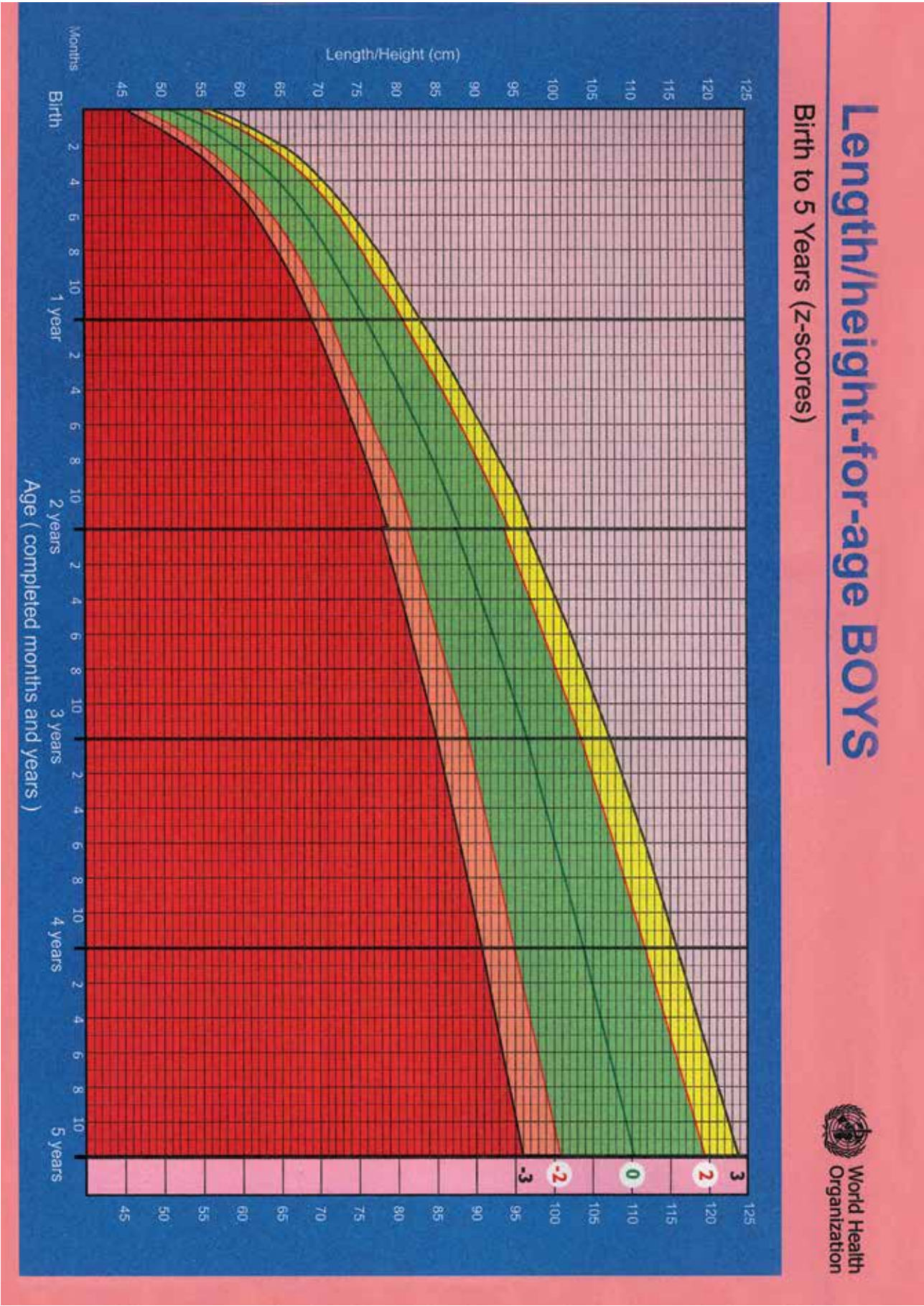
Weight-for-Height GIRLS

2 to 5 Years (z-scores)



Remarks :

WHO Child Growth Standards





معييار الوجبات

إستخدامي فنجان القهوة العُماني كمعيار لتمنحي طفلك

التغذية السليمة والنمو المثالي



طريقة الإستخدام: استخدمي فنجان القهوة العُماني كمقياس لكمية الطعام الذي يجب أن تعطيه لطفلك حسب عمره، و يجب أن تحتوي الوجبة الواحدة على كافة العناصر الغذائية المسموحة للطفل حسب عمره، كما يجب أن تعطي طفلك كمية ونوعية الطعام وعدد الوجبات التي تتفق مع سنه كما هو موضح في الجدول التالي:

المقياس	عمر الطفل
٣-٢ ملاعق طعام	نهاية الشهر السادس
$\frac{1}{2}$ فنجان قهوة ممتلئ	٧-٨ شهور
$\frac{3}{4}$ فناجين قهوة ممتلئة	٩-١٢ شهراً
٤ فناجين قهوة ممتلئة	١٢-٢٤ شهراً

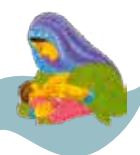


العمر	نوع الوجبة	عدد الوجبات	كمية الوجبة
صفر - ٦ شهور	رضاعة طبيعية خالصة عند الحاجة في الليل والنهار.	عند الحاجة، على الأقل ٦ رضعات في الليل و٨ رضعات بالنهار (خلال ٢٤ ساعة).	
عند نهاية ٦ أشهر	عصيدة لينة مع خضروات ولحم، وفاكهة مهروسة جيداً.	مرتين يومياً بالإضافة للرضاعة الطبيعية.	٢ - ٣ ملاعق في كل وجبة 
٧ - ٨ شهور	إعطاء طعام مهروس ومتناسك (ليس سائلاً).	٣ وجبات أساسية، ووجبة خفيفة في اليوم مع الرضاعة الطبيعية.	٢ فنجان قهوة ممتلئ في كل وجبة أساسية 
٩ - ١٢ شهر	إعطاء طعام مهروس ومتناسك أو مقطع يمكن أن يمسه الطفل. يجب أن تحتوي الوجبة على البروتينات والنشويات والدهون والفيتامينات والمعادن.	٣ وجبات أساسية، ووجبتين خفيفتين في اليوم بالإضافة للرضاعة الطبيعية.	٣ فنجانين قهوة ممتلئين في كل وجبة أساسية 
١٢ شهر - ٢٤ شهر	طعام العائلة أو طعام مهروس عند الحاجة.	٣ وجبات أساسية، ووجبتين خفيفتين في اليوم مع الرضاعة الطبيعية.	٤ فنجانين قهوة ممتلئين في كل وجبة أساسية. 

ملاحظات هامة

- يجب تجنب الأطعمة الصلبة والسوائل للأطفال من سن الولادة وحتى نهاية الشهر السادس.
- يجب عدم تقديم العسل للأطفال دون السنة.
- عند نهاية الشهر الرابع يمكن إعطاء الطفل وجبات صغيرة متكررة، وذلك عند ظهور علامات الجوع عليه مثل البكاء المستمر أو نقصان وزنه، وذلك مع الرضاعة الطبيعية.

BREAST FEEDING POLICY



Breast milk is the most nutritious and beneficial food for newborns and babies. Breastmilk provides an infant's total nutrient requirement for the first six months of life. When combined with adequate introduction of complementary foods at the right age, it is an invaluable source of nourishment until 2 years of age.

It is the policy of the Ministry of Health that breastfeeding be adopted in all health institutions, government or private to become "Baby friendly" through implementation of the following steps by all health personnel.

- 1- Place babies in skin to skin contact with their mothers immediately following birth and help mothers initiate breastfeeding within an hour of birth.
- 2- Do not separate newborn babies from mothers; allow mothers and newborns to remain together 24 hours after birth .
- 3- Orient all staff on the National Breastfeeding Policy and train them on the benefits and management of breastfeeding .
- 4- Inform every mother about the benefits and management of breastfeeding.
- 5- Show mothers how to breastfeed and how to maintain lactation even if newborn baby and mother are separated for medical reasons. In such cases mothers should be taught to express breast milk in the hospital and at home as much as possible. Babies should be given only their mother's breast milk and not from another mother.
- 6- Encourage mothers to breastfeed on demand and not on schedule.
- 7- Give newborns no milk substitutes, food, drink or water unless medically indicated.
- 8- Give no artificial teats or pacifiers to newborn babies.
- 9- Do not supply bottle or milk substitutes to newborn except when medically indicated. No free or subsidized breastmilk substitutes should be provided to any health facility. Such supplies are not to be offered, nor accepted by health services or health workers at any level, whether private or government. Any such products which are required by health institutions must be obtained through normal procurement procedures.
- 10- Foster establishment of breastfeeding support groups in the hospital and in the community.



Second edition 2011



Sultanate of Oman - Ministry of Health
General Directorate of Health Affairs
Department of Health Education and
Information



National Policy on Infant and Young Child Feeding

This policy is developed to ensure and improve the survival, health, nutritional status, growth and development of infants and young children through optimal feeding. To ensure optimal infant and young child feeding, the followings should be practiced by all health institutions.

- 1- Initiate breast feeding within one hour from birth and promote exclusive breast feeding for about the first 6 months of age.
- 2- Ensure timely introduction of complementary foods at the end of the sixth month. The mother has to start observing for signs of hunger after the child completes four months.
- 3- Ensure that all children are fed adequate and hygienically prepared complementary foods.
- 4- Educate the mothers to increase food quality, quantity and frequency with a combination of meals and snacks, as the child gets older, with continued breastfeeding into the second year.
- 5- Encourage the mothers to diversify the diet to improve quality and micronutrients intake, satisfy protein, iron, vitamin A, and iodine requirements.
- 6- Encourage caregivers to practice active feeding, respond to motor development, and appropriate care practices.
- 7- During illness, advise the mothers to increase frequency and quantity of meals, and continue breastfeeding.
- 8- Integration of the specific monitoring and evaluation system is an essential part in the implementation of this policy.
- 9- The implementation of the Oman Code 55/98 on the marketing of the breast milk substitutes is the responsibility of all health personnel at the health facility, wilayat, and regional levels.
- 10- Check baby's weight regularly as an indicator of adequate nutrition and refer malnourished children to nutrition clinic in the health facility for management, counseling and follow up.
- 11- Train all health workers on the infant and young child feeding policy. Foster establishment of infant and young child feeding support groups in the health facilities and the communities.



Second edition 2011



Sultanate of Oman - Ministry of Health
General Directorate of Health Affairs
Department of Health Education and
Information





References

1. Alasfoor, et al. 2009. Course on Child Growth and Monitoring, Department of Nutrition, unpublished.
2. Department of Nutrition 2004, Standard Operating Procedures for Management of Protein Energy Malnutrition in Primary and Secondary Health Care Services in Oman, Ministry of Health
3. International Food Standards, CODEX STANDARD FOR FOLLOW-UP FORMULA, CODEX STAN 156-1987
4. Ministry of Health & Family Welfare 2009, Facility Based Care Chart Booklet, New Delhi, Government of India
5. WHO. A Guide for Health Administrators & Programme Managers: Preventing & Controlling Iron Deficiency Anemia Through Primary Health Care. Geneva, World Health Organization, 2011. Available at:
http://www.who.int/nutrition/publications/micronutrients/anaemia_iron_deficiency/9241542497.pdf?ua=1
6. WHO & UNICEF Joint statement. WHO child growth standards and the identification of severe acute malnutrition in infants and children. Geneva, 2009. Available at:
http://apps.who.int/iris/bitstream/10665/44129/1/9789241598163_eng.pdf?ua=1
7. WHO/WFP/ UNSCN/ UNICEF Joint statement. Community-Based Management of Severe Acute Malnutrition. 2007. Available at:
http://www.who.int/nutrition/topics/Statement_community_based_man_sev_acute_mal_eng.pdf
8. WHO. Haemoglobin concentrations for the diagnosis of anaemia and assessment of severity. Geneva, 2011. Available at:
http://apps.who.int/iris/bitstream/10665/85839/3/WHO_NMH_NHD_MNM_11.1_eng.pdf?ua=1
9. WHO Child Growth Standards. Training course on Child Growth Assessment. Job aid: Investigating Causes of Undernutrition. WHO, 2006. Available at:
http://www.who.int/childgrowth/training/Investigating_causes.pdf
10. WHO. Guideline: Intermittent iron supplementation in preschool and school-age children. Geneva, World Health Organization, 2011. Available at:
http://apps.who.int/iris/bitstream/10665/44648/1/9789241502009_eng.pdf

11. WHO. Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers. Geneva, World Health Organization, 1999. Available at: <http://apps.who.int/iris/bitstream/10665/41999/1/a57361.pdf?ua=1&ua=1>
12. WHO. Background document for an informal technical consultation on the dietary management of moderate malnutrition: Management of moderate malnutrition in under-5 children by the health sector, September 30th - October 3rd 2008, WHO. Available at: http://www.who.int/nutrition/topics/MM_consultation_background.pdf
13. WHO/UNICEF/WFP/UNHCR Consultation on the Programmatic Aspects of the Management of Moderate Acute Malnutrition in Children under five years of age, 24-26 February 2010, WHO, Geneva. Available at: http://www.who.int/nutrition/topics/moderatemalnutrition_consultation_programmaticaspects_MM_report.pdf
14. WHO. Technical note: supplementary foods for the management of moderate acute malnutrition in infants and children 6–59 months of age. Geneva, World Health Organization, 2012. Available at: http://apps.who.int/iris/bitstream/10665/75836/1/9789241504423_eng.pdf
15. WHO. Population-based approaches to Childhood Obesity Prevention. Geneva, World Health Organization, 2012. Available at: http://apps.who.int/iris/bitstream/10665/80149/1/9789241504782_eng.pdf?ua=1
16. WHO/UNICEF/UNU. A Guide for Programme Managers: Iron Deficiency Anaemia Assessment, Prevention and Control. World Health Organization, 2001. Available at: http://apps.who.int/iris/bitstream/10665/66914/1/WHO_NHD_01.3.pdf
17. <http://www.who.int/childgrowth/standards/en/>

**DIRECTORATE GENERAL OF PRIMARY HEALTH CARE
DEPARTMENT OF NUTRITION**

TEL :24946355 / 24946354

Email : nutritionoman@gmail.com

www.moh.gov.om