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TO: HEADS OF ALL INSTITUTIONS
CLINICIANS / DIETICIANS / NURSES
DEPARTMENT OF HEALTH

IMPLEMENTATION GUIDLELINES FOR NUTRITION INTERVENTIONS AT HEALTH FACILITIES TO MANAGE AND PREVENT MALNUTRITION

1. BACKGROUND

Nutritional problems are complex and are found to be directly linked to inadequate or inappropriate food intake and disease. The underlying causes of these problems are household food insecurity, inadequate care of women and children, and inadequate access (or lack of) to health services and sanitation. In turn, these problems are the result of social, cultural, political and economic factors (Essential Nutrition Actions: Improving Maternal, Newborn, Infant and Young Child Health and Nutrition - WHO 2013). Malnutrition in all its forms is closely linked either directly or indirectly, to major causes of death and disability worldwide. In 2000, malnutrition was ranked as the fifth leading cause of death among children younger than 5 years of age in South Africa (National Food Consumption Survey NFCS 2005).

These factors require an ongoing process of Assessment, Analysis and Action at all levels of government, but most particularly at the local level where root causes of hunger and malnutrition should be determined.

2. OBJECTIVE

2.1 To contribute to optimal Nutritional status of all targeted and vulnerable clients

2.2 To contribute to the better understanding of nutritional disorders, their main causes and the available sustainable interventions to overcome and treat these disorders.

2.3 .To bring to the attention of all institutions the implementation guidelines for nutrition interventions at health facilities to manage and prevent malnutrition and promote good health.

2.4 To ensure consistent optimal Nutrition service delivery to all clients.

3. FACTS

3.1 Children in rural communities and commercial farms are nutritionally at a greater disadvantage than children living in urban areas. The prevalence of being underweight tends to be higher in children living in informal housing and is the lowest for children whose mothers are well educated. Stunting, which is a form of chronic malnutrition, in KwaZulu Natal was estimated to be 15.1%, and can be associated with the fact that almost two thirds (63%) of the population

lives in poverty. The prevalence of stunting was the highest in children living in traditional or informal housing and has poorly educated mothers. On the basis of these findings, stunting was identified as a major public health problem in the country (National Food Consumption Survey NFCS 2005).

3.2 Wasting is estimated to be 1.3% and underweight 5% (NFCS Survey; 2005).

3.3 In 2005 also KZN had the highest proportion (89%) of children nationally with an inadequate vitamin A status, with nearly half of the 1 – 9 year old population severely deficient. Regarding iron deficiency, 3.6% of children were found to be iron deficient and 5.9% had iron deficiency anaemia.

3.4 The 2002 National Youth Risk Behaviour Survey indicated that 17% of youth were overweight and 4.2% were obese. The 2008 National Youth Risk Behaviour Survey indicated that KwaZulu-Natal province had the highest prevalence (25.5%) of learners who were overweight and 5.4% were obese. The 2003 SADHS reported 31.2% overweight among women in this age group, whereas the 2005 National Food Consumption Survey- Fortification Baseline (NFCS-FB) reported a rate of 42.2%. A lack of physical activity and poor dietary patterns are the main contributors to the overweight trend in adolescents. According to the 2002 National Youth Risk Behaviour Survey, 38.5% of youth engage in insufficient physical activity, with 25% watching more than three hours of television per day.

3.5 The Implementation Guidelines are based on the priority nutrition interventions of the Integrated Nutrition Programme that will help guide health facilities and Districts in the prevention and treatment of all forms of malnutrition. A multidisciplinary approach at all levels of care will result in the formation of best practice standards leading to improved Nutritional Status of all people of KZN.

RECOMMENDATION

It is recommended that the Implementation Guidelines for Nutrition Interventions at Health Facilities to Manage and Prevent Malnutrition dated June 2010, be replaced with the attached guidelines dated August 2013.

Please do not hesitate to write or email to the Nutrition Directorate should you encounter any problems with regards to this circular.

DR S ZUNGU
HEAD OF DEPARTMENT

IMPLEMENTATION GUIDELINES FOR NUTRITION INTERVENTIONS AT HEALTH FACILITIES

health

Department:
Health
PROVINCE OF KWAZULU-NATAL

NUTRITION DIRECTORATE
AUGUST 2013

IMPLEMENTATION GUIDELINES FOR NUTRITION INTERVENTIONS AT HEALTH FACILITIES

CONTENTS

DEFINITIONS AND INTERPRETATIONS

In this document the following words and phrases shall have the following meanings unless the context otherwise requires:

Anaemia	A reduction of haemoglobin in the blood. Can be due to a low level of iron in the diet.
Anti-nutrients	Natural or synthetic compounds that interfere with the absorption of nutrients.
Body Mass Index (BMI)	Weight (in kilograms) divided by height (in meters) squared (weight/height^2)
Chronic illness	A disease or condition which continues over an extended period (may be lifelong)
Communicable disease	A disease or condition that can be passed on (transmitted) from one person to another
Community-based	A set of activities to bring about development which is carried out at community level
Complementary Feeding	The introduction of other foods to the baby's diet in addition to breast milk at six months
Exclusive breastfeeding	The infant that receives only breast milk, or expressed breast milk, and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines.
Food Supplement	The provision of food products in addition to food available at home or addition of more nutritious foods to a simple diet
Growth Monitoring and promotion	The regular measurement, recording and interpretation of a child's growth in order to counsel, act and follow up results with the purpose of promoting child health, human development and quality of life
Household Food Insecurity	The inadequate access by the household to amounts of food of the right quality to satisfy the dietary needs and healthy active life of all its members throughout the year
Hunger	The body's way of signalling that it is running short of food and needs to eat something. Hunger can lead to malnutrition.
Incidence	The number of new cases in a defined population within a specified period of time
Iodine Deficiency	A lack of sufficient iodine in the diet, which can lead to inadequate production of thyroid hormone (hypothyroidism) and enlargement of the thyroid gland (goitre).
Low birth Weight	A birth weight of less than 2 500 grams
Macronutrients	Nutrients required by the body in large quantities and measured in grams e.g. carbohydrate, protein and fat.
Malnutrition	Various forms of poor nutrition caused by a complex array of factors including dietary inadequacy, infections, and socio-cultural factors. Underweight or stunting and overweight, as well as micronutrient deficiencies, are forms of malnutrition. For the purpose of this document malnutrition refers to all conditions related to undernutrition.
Moderate Acute Malnutrition	Is defined as a weight-for-height between –2 and –3 standard deviation or a mid-upper arm circumference (MUAC) between 11.5 cm and 12.5 cm.

Micronutrients	Nutrients required by the body in small quantities and measured in micro or milligrams e.g. vitamins and minerals
Micronutrient supplementation	The provision of micronutrients as medicine to individuals
Mortality	The number of deaths caused by a specific disease
Not growing well	The failure to gain adequate weight for a child's age between two consecutive weighings
Nutrient	A chemical substance obtained from food and needed by the body for growth, maintenance, or repair of tissues. There are 6 known nutrients: carbohydrates, protein, fat, vitamins, minerals and water
Nutrition	Deals with food in relation to health and the process by which organisms use food for maintenance of life, growth, normal functioning of body organs and tissues and the production of energy
Nutrition Indicators	The situations, signs or measurements used to point to or index different progress in programme implementation, progress, and or processes
Nutritional Status	The nutritional health of a person as determined by anthropometric measurements (weight, height, head/arm circumference etc.), biochemical measures of nutrients, a physical examination and/or a dietary analysis
Obesity	A body mass index (BMI) (body mass is divided by the square of the height in meters) equal to or more than 30kg/m^2.
Oedema	Swelling of the body due to the collection of fluid in body cavities.
Oral Rehydration Therapy (ORT)	This is a mixture of 1 litre cooled, boiled water mixed with 8 teaspoons sugar and ½ teaspoon salt. It is given to persons to prevent dehydration caused by diarrhoea.
Overweight	Proportion of children with weight for height over 2 standard deviations from the norm (reference population median).
Prevalence	The total number of individuals in a given population at any one time
Severe Acute Malnutrition	Defined by WHO as a weight for height less than -3 standard deviations, or a Mid-upper arm circumference of less than 11.5 cm, or the presence of bilateral nutritional oedema.
Stunting	Failure to reach linear growth potential because of long-term undernutrition and poor health, measured as height-for-age -2 standard deviations below the international reference. It is usually a good indicator of long-term undernutrition among young children.
Target group	These are specific groups within the population, which have been identified as vulnerable and selected to benefit from a set of activities based on an identified critical need
Undernutrition	Poor nutrition: It may occur in association with infection. Three most commonly used indexes for child undernutrition are height-for-age, weight for-age, and weight-for-height. For adults, undernutrition is measured by a BMI less than 18.5 kg/m^2

Underweight	Proportion of children with weight for age under 2 standard deviations from the norm (reference population median)
Vitamins	These are organic compounds needed in very small amounts in the diet to help regulate and support chemical reactions in the body. Vitamins are substances found in small amounts in food. Most of the vitamins cannot be made by the body and have to be taken in with food
Wasting	Reflects a recent and severe process that has led to substantial weight loss, usually associated with starvation and/or disease. Wasting is calculated by comparing weight for height of a child with a reference population of well-nourished and healthy children.
z-score	The deviation of an individual's value from the median value of a reference population, divided by the standard deviation of the reference population.

ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
BMI	Body Mass Index
CBOs	Community based organizations
CMAM	Community-based Management of Acute Malnutrition
DHS	District Health System
DRI	Dietary Reference Intake
DHIS	District Health Information System
EMM	Enriched Maize Meal Porridge
EPI	Expanded Programme for Immunisation
GMPr	Growth Monitoring & Promotion (routine)
GMPs	Growth Monitoring & Promotion (support)
HFBNP	Health Facility Based Nutrition Programme
HIV	Human Immunodeficiency Virus
IC	Inpatient Care
IDD	Iodine Deficiency
IMCI	Integrated Management of Childhood Illness
INP	Integrated Nutrition Programme
IYCF	Infant & Young Child Feeding
LBW	Low Birth Weight
MAM	Moderate Acute Malnutrition
MBFI	Mother Baby Friendly Initiative
MCWH	Maternal Child and Woman's Health
MUAC	Mid- Upper Arm Circumference
OTP	Outpatient Therapeutic Program
ORS	Oral Rehydration Solution
OSP	Outpatient Supplementary Program
PEM	Protein Energy Malnutrition
PHC	Primary Health Care
RDA	Recommended Daily Allowance
RUTF	Ready to Use Therapeutic Feed
SAM	Severe Acute Malnutrition
SD	Standard Deviation
TB	Tuberculosis
U5MR	Under Five Mortality Rate
UNICEF	United Nations Children's Fund
VAD	Vitamin A Deficiency

1. BACKGROUND AND SITUATIONAL ANALYSIS

1.1 Contextualization & Summary.

This document is an update of the Health Facility Based Nutrition Guidelines of 2010. It aims to provide continued guidance on the implementation of the Integrated Nutrition Programme at facility level and incorporates updates on policies that have been revised recently on areas such as Community Based Management of Severe Malnutrition, Vitamin A supplementation programme, Infant and Young Child Feeding and on Nutrition Indicators. This document does not include all aspects of therapeutic nutrition such as specialized feeds that needs to be prescribed by a clinical dietician (e.g. enteral feeds and Total Parenteral Nutrition), therapeutic foodservice management, and disease specific treatment guidelines for dieticians. The KwaZulu-Natal Department of Health Clinical Working Group is updating the therapeutic guidelines and looking at norms and standards for dieticians and nutritionists.

The Implementation Guidelines are based on the Priority Nutrition Interventions of the Integrated Nutrition Programme that will help guide health facilities and Districts in the prevention and treatment of malnutrition. A multidisciplinary approach at all levels of care will results in the formation of best practice standards leading to improved Nutritional Status of all people of KZN.

1.2 Background

The *Integrated Nutrition Programme (INP)* aims to facilitate a coordinated, inter-sectoral approach to solving the current nutrition problems in the country.

South Africa is in a nutrition transition in which undernutrition, notably stunting and micronutrient deficiencies co-exist with a rising incidence of overweight and obesity. Child malnutrition is a major global health problem, leading to morbidity and mortality, impaired intellectual development and working capacity, and increased risk of adult disease (Roadmap for Nutrition in South Africa 2012-2016). Undernutrition affects large numbers of children in poor countries, placing them at increased risk of mortality. The last national nutrition survey, the *National Food Consumption – Fortification Baseline survey* (NFCS-FB) of 2005 has provided an estimate that about 4.5% of children aged 1 to 9 years are wasted. About 18% are stunted, with underweight affecting 9.3% of the children. Moderate malnutrition increases the risk of death from common diseases and, if not adequately treated, may worsen, resulting in severe acute malnutrition (severe wasting and/or edema) and/or severe stunting (height for- age < –3 standard deviation), which are both life-threatening conditions. Therefore, the management of moderate malnutrition is a public health priority (Roadmap for Nutrition in South Africa 2012-2016).

Young children are likely to be more sensitive to the effect of anti-nutrients, e.g., high levels of phytate, which impairs the absorption of several growth-limiting minerals, such as zinc. Infants and young children are especially vulnerable to malnutrition because they have a high growth velocity and also high energy and nutrient needs. Growth velocity up to the age of about 2 years is especially high, and it is also during this period that the brain reaches almost 90% of adult size. Treating undernutrition is likely to have a very significant impact on health, by preventing the development of severe acute malnutrition, reducing morbidity and mortality, and improving mental and physical development (Roadmap for Nutrition in South Africa 2012-2016).

The period during pregnancy and a child's first two years of life also referred to as the *"first 1000 days of life"* are considered a *"critical window of opportunity"* for prevention of growth faltering (South African IYCF Policy 2013). Reducing child malnutrition requires nutritious food, breastfeeding, improved hygiene, health services, and care. Poverty and food insecurity seriously constrain the accessibility of nutritious diets that have high protein quality, adequate micronutrient content and bioavailability, minerals and essential fatty acids, low anti-nutrient content, and high nutrient density. On the other hand TB, HIV and AIDS are conditions that are aggravating existing malnutrition due to their effect on food intake, absorption and metabolism. Both conditions are exacerbated by malnutrition due to nutritional demands of the disease state. They often result in loss of weight, muscle tissue and subcutaneous fat. There is often an associated micronutrient deficiency, reduced immune competence and increased susceptibility to infection which in turn increase the risk of early

death (Roadmap for Nutrition in South Africa 2012-2016) (The South African Supplementary Feeding Guidelines for at Risk and Malnourished Children and Adults 2013).

The INP aims at creating interventions that are integrated, sustainable, people and community-driven and are targeted at the most vulnerable groups of the population. The INP adopts the *United Nations Children's Fund (UNICEF)* conceptual framework for the prevention of malnutrition. The framework explains malnutrition as an outcome of interrelated, complex, basic underlying and immediate causes, as well as nutrition programming as an on-going process of *Assessment, Analysis and Action* (the *Triple A Cycle)*, at all levels in any given context.

1.3 Situational Analysis

The KZN Province is home to an estimated 10 million people living at a density of 105 people per km^2. This population is split between urban and rural communities with poor access to municipal services such as piped water which is available on site to 53% of households. At 39, 3% the poverty level is high and only 11, 8% of the populace has access to medical aid. (1st Triennial Report of the Committee on Morbidity and Mortality in Children Under 5 Years (CoMMiC-2011 Report))

KZN has an estimated *infant mortality rate (IMR)* of 49/1000 and a *child mortality rate (U5MR)* of 65/1000 (1st Triennial Report of the Committee on Morbidity and Mortality in Children under 5 Years (CoMMiC-2011 Report).

The Saving Mothers report 2011 report that institutional maternal mortality rate (MMR) in South Africa is 176.22 / 100 000 live births (2008-2010). This is an increase since the 2005 – 2007 Saving Mothers report (151.77/100 000 live births) and remains above the Millennium Development Goal of 38/100 000 live births (Health, South African Department of. Saving Mothers 2008 - 2010: Fifth Report on the Confidential Enquiries into Maternal Deaths in South Africa).

The table below indicates that there has only been a slight improvement in the Anthropometric status of children since 1994 in KwaZulu-Natal.

Year	Stunting	Underweight	Wasting	Overweight
1994 (SAVACG)	16%	4%	1%	7%
1999 (NFCS)	19%	4%	9%	4%
2005 (NFCS-FB 1)	15%	5%	1%	6%

Table indicating the anthropometric status of children aged 1-9 years in KwaZulu Natal
Source: Health Review 2008, Health Systems Trust

In KwaZulu-Natal the NFCS 2005 also found that 6 out of 10 women have poor Vitamin A status, the highest in the country. This finding is an indication that in KZN, maternal nutrition remains a big challenge. Vitamin A supplementation of 12-59 months was low at 27.9%. Recording of children receiving of a Vitamin A dose for 12-59 months old children was 54.8% (NCFS 2005).

The results of the 1998 food fortification survey on IDD shows that, following the promulgation of regulations requiring the iodization of all food grade salt in 1995, South Africa has made significant progress in the elimination of IDD. The overall median urinary iodine level (amongst primary school aged children) is 193ug/L within the desired range of 100-200ug/L.

A review of child survival interventions that are feasible for delivery at high coverage in low-income settings in 42 countries showed that the promotion, support and protection of breastfeeding is effective in preventing death from diarrhoea, pneumonia and neonatal sepsis. Breastfeeding prevents 13% of all under-five deaths in countries with a high under-five mortality rate. It far outweighs the number of deaths that can be prevented from any other single preventative intervention (WHO Collaborative Study Team on the Role of Breastfeeding on the Prevention of Infant Mortality., "Effect of Breastfeeding on infant and child mortality due to infectious diseases in less developed countries: pooled analysis.," *Lancet,* Vols. 354:471-76, 2000).

In South Africa, infant feeding practices are sub-optimal, with rates of breastfeeding, especially exclusive breastfeeding, remaining low. Data from the 2003 South African Demographic and Health Survey (SADHS), and other studies show that although breastfeeding is common practice in South Africa, and initiated early post-delivery, mixed feeding rather than exclusive breasting is the norm. (Department of Health, Medical Research Council, OrcMacro, South Africa Demographic and Health Survey 2003, Pretoria: Department of Health, 2007).

The SADHS in 2003 found that only 11.9% of children aged 0-3 months were exclusively breastfed, and 20.1% of children age 0 – 3 months were not breastfed at all. Only 1.5% was exclusively breastfed at 4 – 6 months (Department of Health, Medical Research Council, OrcMacro, South Africa Demographic and Health Survey 2003, Pretoria: Department of Health, 2007).

However, KwaZulu-Natal Province currently have an exclusively breastfeeding rate of 34.3% at 14 weeks as per the Impact Assessment study conducted in June 2012. This came after Infant and Young Child feeding Policy Revision in KwaZulu-Natal that was implemented from 2010. It is however of great concern that there is still high mixed feeding rate of 56.6% at 14 weeks.

Studies have shown that inadequate support for infant and young child feeding is the main contributing factor to inappropriate feeding practices globally. It is therefore very crucial for healthcare personnel to receive up to date evidence based knowledge and skills on appropriate infant feeding and young child feeding practices to provide quality counseling and adequate support to mothers and caregivers (R. N. B. R. Sonal S, "Breastfeeding Knowledge among Health Workers in Rural South Africa," vol. 51, no. 1: 33 - 36, December 2004).

Undernutrition is the most common underlying problem in child death associated with infectious diseases. According to the Saving Children report 2005-2007, 64% of children who died in hospital were undernourished and 33% were severely malnourished. The case fatality rate for children with severe malnutrition was three times higher than the overall in hospital mortality rate for children. Furthermore, a patient had a nearly three times higher risk of dying if underweight and a four times higher risk of dying if severely malnourished compared to a patient with a normal weight.

According to the NFCS 2005, the prevalence of over nutrition is also high in the Province, 54.7% of women are overweight or obese. It was also reported that amongst South African learners surveyed, 19.7% was overweight. This was noted to be the highest amongst the age group 14 – 15 years (22.2%) compared to the 19 years and older group of which 14.9% presented to be overweight. It was further reported that the prevalence of obesity amongst South African youth was 5.3%. This supports the statement that South Africa is a country in nutrition transition with both under and over nutrition presenting amongst the population (National South African Youth Risk Behaviour Survey 2008, NDOH)

2. NUTRITION INTERVENTIONS AT HEALTH FACILITIES TO MANAGE AND PREVENT MALNUTRITION

2.1 Introduction

Nutritional problems are complex and are found to be directly linked to inadequate or inappropriate food intake and disease. The underlying causes of these problems are household food insecurity, inadequate care of women and children, and inadequate access (or lack of) to health services and sanitation. In turn, these problems are the result of social, cultural, political and economic factors. The UNICEF Conceptual Framework (ANNEXURE A) for improved nutrition of children and women in developing countries illustrates the complex nature of nutritional problems. These factors require an ongoing process of assessment, analysis and action at all levels of government, but most particularly at the local level where root causes of hunger and malnutrition should be determined.

2.2 Implementation Framework for Nutrition Interventions at Health Facilities

The INP should be implemented as an integral part of the overall *Primary Health Care (PHC)* and *District Health System (DHS)* approach. Nutrition interventions at health facilities employ complementary strategies in order to promote and address nutritional problems. Growth Monitoring, which is a strategy mainly to monitor and promote growth and development, should be implemented mainly at all health facilities. This is notwithstanding the fact that most children who suffer from multiple nutrient deficiencies do not come to the health facility, or that they are brought to the health services only when they are very ill and their weight loss is very extreme. It is envisaged that growth monitoring should be extended to the community.

The Department of Health is implementing PHC re-engineering strategy that is designed to improve health outcomes, overhaul the health care system and strengthen the District Health System. Three streams will be created namely PHC Outreach Teams that are ward based; School Health Services and District based Clinical Specialist Team (DCSTs). The role of the PHC outreach team is promoting health, preventing ill health, providing information and education to communities and households on a range of health and related matters and environmental health. The new KZN PHC structure includes placement of Nutrition Advisors at every clinic as a member of the PHC outreach teams. There is also Phila Mntwana campaign that is implemented in the Province as part of PHC engineering that is focusing on introducing GMP sites in areas outside health facilities such as war rooms, early childhood development centres, elderly luncheon clubs and at any other point in the ward depending on the catchment population of children under 5 years and the accessibility based on geographical size of the ward.

The *Integrated Management of Childhood Illness (IMCI)* is also one of the intervention strategies that is complementary to the INP. The IMCI adopts an integrated strategy, which takes into account the variety of factors that place children at serious risk. It ensures the combined treatment of the major childhood illnesses, it speeds up the urgent treatment of seriously ill children, it involves parents or caretakers in the effective care of their children at home wherever possible, and it emphasises the prevention of disease through immunisation, improved nutrition including micronutrient supplementation and exclusive breastfeeding. It also emphasises the importance of improving relevant family, community and broad care practices. This framework of implementation of the INP is made possible through the utilisation of existing structures to develop common plans especially at the community level.

2.3 Aims & Objectives Of The Health Facility-Based Programme

- To transform health facilities in order to support maternal and infant needs, and to declare most health facilities in the country mother and baby friendly.
- To improve the understanding of the importance of breastfeeding.
- To improve the understanding of the importance of appropriate complementary feeding.
- To correct child feeding practices and advocate for growth monitoring and promotion among health and community health workers.
- To improve child growth monitoring and promotion of all children less than two years of age.
- To ensure breastfeeding and other appropriate feeding to all children with diarrhoeal disorders, while they receive ORT therapy & zinc supplementation.
- To ensure referral of families with malnourished children to the community-based nutrition projects and/or to the appropriate level of health care, as necessary.
- To implement Community based Management of Severe Malnutrition
- To implement Vitamin A supplementation to children so as to promote healthy growth and combat vitamin A deficiency.
- To improve quality of life and provide nutrition education for preventing chronic diseases of lifestyle (diabetes mellitus, hypertension , obesity and heart disease)
- To improve the quality of life and provide nutrition education for persons suffering from debilitating diseases, HIV & TB.

- To contribute to the better understanding of nutritional disorders, their main causes and the available sustainable interventions to overcome and treat these disorders.
- To ensure effective collaboration between nutrition related activities and MCH/EPI services at the health facilities within the framework of the IMCI.
- To ensure that infant formula will be purchased under *State Tender*, and will be available to those who have been assessed to need them.
- To improve the availability of nutrition information to all.

2.4 Targeting

Nutrition interventions at health facility level are to be targeted towards areas where growth faltering and malnutrition is high. Within each district geographical targeting should be undertaken in order to allocate funds to health facilities.
The targeted beneficiaries are prioritized as follows:

- Children 0 - 23 months.
- Children 2 – 5 years
- Children 6 – 14 years
- At risk pregnant women
- At risk lactating women
- HIV and AIDS and TB clients
- Chronic diseases of lifestyle

3. PRIMARY PREVENTION INTERVENTIONS:

A primary intervention is the **FIRST** intervention received. It is the **STARTING POINT** of the nutrition care process. Primary intervention includes the following:

3.1 Provide nutrition education and other relevant information on:

3.1.1 Food Based Dietary Guidelines

The Food Based Dietary Guidelines will be used as the basis for all nutrition education on healthy eating and should include some of the following points:

Enjoy a variety of foods

- Include foods from two or more groups at each meal

Make starchy foods part of most meals

- Fortified maize meal and bread provide extra vitamins and minerals
- Include whole grains

Fish, chicken, lean meat or eggs could be eaten daily

- Choose fish with fatty flash (pilchards, sardines, mackerel and salmon)
- Use lean meat, remove fat and skin from chicken and limit use of cheese and processed meat, e.g. polony and sausages that are high in salt and fat

Eat plenty of vegetables and fruits every day

- Include dark green leafy vegetables and yellow or orange fleshed vegetables and fruits

Eat dry beans, split peas, lentils and soya regularly

- These foods should be eaten at least two to three times per week

Have milk, maas or yoghurt everyday

- Use low fat or skim milk or maas and low fat yoghurt.

Use salt and food high in salt sparingly

- Use very little salt at a time during cooking or at the table. Beware of salts in seasoning salts, stock cubes, soup powders, commercial salad dressings.

Eat fats sparingly; choose vegetable oils rather than hard fats

- Use little fat at a time and choose fats or oils such as tub margarine or sunflower, canola or olive oil

Use sugar and food and drinks high in sugar sparingly

- A small amount can be added to food and drinks

Drink lots of clean, safe water

- Children and adults need 6-8 glasses of liquid everyday

Be active!

- Exercise for at least 3- 5 times a week for 20 – 50 minute

3.1.2 South African Food Guide

Launched during National Nutrition Week 2012, the new South African Food guide consists of 7 circles of different sizes filled with examples of the food/beverage groups that we eat/drink is South Africa. The different sizes of the circles indicate how important each one of the food groups is and give a rough idea of what percentage that food group should occupy in our diets. See diagram labelled as annexure E.

3.1.3 Paediatric Food Based Dietary Guidelines

Appropriate nutritional intake in young children is a diverse concept, incorporating suitable nutritional choices and feeding behaviours. Lessons learnt in childhood will have long-term effects on the individual and society overall. Since South African children are raised in a country where under- and over- nutrition exist simultaneously, a careful balance should be achieved in any national public health message. The South African paediatric food-based dietary guidelines for children younger than 7 years strive to facilitate the education of carers of young children in the adoption of healthy eating practices. These guidelines are currently being field tested and once finalised will be published. The guidelines address issues regarding:

- Variety in the diet that has been shown to improve both micro- and macronutrient intakes.
- Specific reference is made to starchy foods, vegetables, fruit and water along with protein sources, which should be consumed regularly.
- Milk, has been emphasised in these guidelines because of the poor calcium intake in South African children.
- The only guideline that limits intake is the sweet treats or drinks message, because of public health concerns such as obesity and dental caries.
- Other messages pertaining to eating habits take cognisance of the child's physiological limitations in gastric capacity and suggest small regular meals.
- Clean, safe drinking water is the beverage of choice.
- Non-food-based guidelines are also included, which recognize the importance of active play, for developmental and health purposes,
- As well as regular clinic attendance

(Bowley NA; Penty-Kluyts MA, Bourne LT, Marino LV, Feeding the 1 to 7 year old child. A support paper for SA paediatric food based dietary guidelines. Maternal Child Nutrition 2007 Oct; 3(4): 281 – 9).

3.2 Protect, support and promote breastfeeding *(Also Refer to Circular Minute No. G68/2010 on Implementation of the new Policy on Infant and Young Child Feeding Counseling on Current Prevention of Mother to Child Transmission Interventions)*

Breastfeeding is an unequalled natural way of providing ideal food for the healthy growth and development of infants.
The anti-infective properties of breast milk protect infants against disease.
All babies should be exclusively breastfed starting within one hour after birth for up to 6 months, and continue breastfeeding, after adding complementary foods, for two years and beyond.
Breastfeeding has a unique biological and emotional influence on the health of both the mother and child.
Breast milk from a well-nourished mother is a good source of vitamin A and iron for up to 6 months.
Exclusive breastfeeding provides natural contraception.
Mothers who decide to use infant formula should be helped to use appropriate formula for the infant's age and circumstances.
Women who choose not to breastfeed should be sure that they can replacement feed safely and consistently to ensure their child's health and survival. The following specific conditions should be met:

- The mother or other caregiver can reliably provide sufficient infant formula milk to support normal growth and development of the infant.
- Safe water and sanitation are assured at the household level and in the community.
- The mother or caregiver can prepare it cleanly and frequently enough so that it is safe and carries a low risk of diarrhoea and malnutrition; and

- The mother or caregiver can, in the first six months, exclusively give infant formula milk, and
- The family is supportive of this practice, and
- The mother or caregiver can access health care that offers comprehensive child health services.

Women who choose to formula feed should receive practical support, including demonstrations on how to safely prepare formula. This includes information on how to prepare formula milk (volume of milk powder and water including temperature of the water), how to feed formula milk (volume needed at each feed and frequency of feeds) and how to sterilise cups.

Human milk banks should be promoted and supported as an effective approach, to reduce early neonatal and postnatal morbidity and mortality for babies who cannot be breastfed.

- Human milk banks should be established in facilities caring for high risk infants.
- Priority for donor human milk should be given to high risk infants who have no access to mother's own breastmilk.

3.2.1 Mother-Baby Friendly Initiative *(also refer to KwaZulu-Natal Provincial Guidelines on Mother-Baby Friendly Initiative Designation for Healthcare Facilities KwaZulu-Natal Nutrition Directorate, 2012)*

The Mother-Baby Friendly Initiative (MBFI) (previously known as Baby-Friendly Hospital Initiative - BFHI); was developed and implemented in the 1990's in response to the 1990 Innocenti Declaration on the protection, promotion and support of breastfeeding. However to ensure its success, it is clear that only a comprehensive, multi-sector, multi-level effort to protect, promote and support optimal infant and young child feeding can hope to achieve sustainable change in behaviour and practices that will allow every mother and family to give every child the best start in life. These efforts include legislative protection, social promotion as well as healthcare worker and health system support (World Health Organisation, UNICEF and Wellstart International, *Baby-Friendly Hospital Initiative: Revised, updated and expanded for integrated care. Section 1: Background and Implementation.*, WHO, UNICEF & Wellstart International, 2009).

The overall goals of Mother and Baby Friendly initiative are to transform hospitals and maternity facilities through implementation of the following ten steps and three additional items and to end the practice of distribution of free and low-cost supplies of breast-milk substitutes to maternity wards and hospitals.

Step 1

Have a written breastfeeding policy that is routinely communicated to all health care staff.

Step 2

Train all health care staff in skills necessary to implement this policy.

Step 3

Inform all pregnant women about the benefits and management of breastfeeding.

Step 4

Help mothers initiate breastfeeding within a half-hour of birth. *Interpreted as*: Place babies in skin-to-skin contact with their mothers immediately following birth for at least an hour. Encourage mothers to recognize when their babies are ready to breastfeed and offer help if needed.

Step 5

Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.

Step 6 Give newborn infants no food or drink other than breast milk, unless medically indicated.

Step 7

Practice rooming-in — allow mothers and infants to remain together — 24 hours a day.

Step 8

Encourage breastfeeding on demand.

Step 9

Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.

Step 10

Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

Item 1

The international Code of Marketing and Breast milk Substitutes

Item 2

Caring for women and babies with HIV

Item 3

Mother Friendly Care

3.3 Breastfeeding in the context of HIV & PMTCT (Also Refer to The National Infant and Young Child Feeding policy 2013 & The South African Antiretroviral Guidelines 2013, for more details)

- The South African National Health programmes adopts an approach to infant feeding that maximizes child survival, not only the avoidance of HIV transmission. South Africa actively promotes, protects and supports exclusive breastfeeding.
- HIV-infected mothers should exclusively breastfeed their infants for six months, with continued breastfeeding up to 12 months, and should receive ART to prevent HIV transmission.
- Formula feeds will be available on prescription by appropriate healthcare professionals for mothers, infants and children with approved medical conditions. Nutritional supplements will be provided according to supplementation guidelines detailed in this document.

3.3.1 Antenatal Infant Feeding Counselling for HIV-negative women or women with unknown HIV status

- Each pregnant woman should receive at least four antenatal counselling sessions on infant feeding.
- At every antenatal visit, HIV-negative women or women of unknown HIV status should be advised to exclusively breastfeed their babies during the first 6 months of life and encouraged to continue breastfeeding for up to 2 years and beyond.
- Every effort should be made to test all pregnant and breastfeeding women for HIV as outlined in the testing section of this document.
- Pregnant HIV negative women or women of unknown HIV status should be counselled to avoid mixed feeding their infants during their first six months of life as exclusive breastfeeding improves child survival.

3.3.2 Antenatal Infant Feeding Counselling for HIV-positive women

- Each pregnant woman should receive at least four antenatal counselling sessions on infant feeding including exclusive breastfeeding, risks of not breastfeeding, appropriate complementary feeding, and feeding the sick child and ART prophylaxis.
- At every antenatal visit, HIV-positive women should be counselled on exclusive breastfeeding. Mothers living with HIV (and whose infants are HIV uninfected or of unknown HIV status) should exclusively breastfeed their infants for the first 6 months of life while introducing appropriate complementary foods from 6 months of age, and continue breastfeeding for the first 12 months of life while the breastfeeding mother continues ART. Breastfeeding should only stop once a nutritionally adequate and safe diet without breast milk is available
- Pregnant women living with HIV should be counselled to avoid mixed feeding during the first six months of the infant's life.

3.3.3 Formula feeding

- Breastfeeding is the feeding recommendation to maximise child survival, there may be instances where HIV infected women decide to avoid all breastfeeding.
- Pregnant women living with HIV should know that formula feeds are not routinely provided as part of the PMTCT programme at public health facilities. Nutritional supplements including formula feeds will be available on prescription by appropriate healthcare professionals for mothers, infants and children with medical conditions.

3.3.4 Infant feeding and postnatal care for HIV exposed infants

- HIV-exposed infants whose mothers are receiving triple-drug antiretroviral prophylaxis or lifelong therapy should receive NVP prophylaxis for six weeks, providing their mothers is adherent to ART.
- Mothers living with HIV should continue ART throughout breastfeeding, regardless of whether this is for prophylaxis or as part of lifelong therapy.

- Mothers living with HIV taking ART as prophylaxis (who are not eligible for lifelong therapy) should stop antiretrovirals one week after breastfeeding cessation

3.3.5 Infant feeding and postnatal care of HIV infected infants

- Infants with confirmed HIV infection should exclusively breastfeed for the first six months, and continue breastfeeding for 24 months with the introduction of complementary foods from age of six months.

3.4 Encourage appropriate complementary feeding of young children

- Complementary feeding is the introduction of other foods to the baby's diet in addition to breast milk.
- Children from 6 months who are breastfed should be breastfed before each feed of complementary foods, i.e. these children need more milk than food. If baby is not breastfed, give 3 cups of full cream milk as well.
- From 6 months, small quantities (1 – 2 teaspoons) of mashed food should be given three times a day. Breast milk will still be the most important source of nutrients. Increase the meal frequency and quantity of food as the child ages.
- Children 9 months and older should breastfeed after giving complementary foods (i.e. these children need more food than milk).
- From one year, child must be given 5 small meals per day. Gradually also increase food thickness, variety and different textures.
- Children should be fed from the family pot rather than purchasing special ready-made foods.
- Care should be taken to ensure that complementary foods are energy and nutrient dense in order to provide adequate energy and nutrients.
- Complementary foods should be prepared under hygienic conditions, and stored safely in order to minimise the outbreak of infections and disease.
- The food given to a baby in addition to breast milk should be rich in micronutrients, such as vitamin A and iron. Mashed fruit, egg and organ or other meat, such as mashed chicken pieces or liver, can be mixed with the baby's porridge.
- Egg yolk can be added from 6 months, egg whites may have potential allergens. Whole eggs and fish can be added after one year of age.

3.5 Nutrition during pregnancy

- Adequate dietary intake during pregnancy is extremely important, since good nutritional status is known to influence favourably pregnancy outcomes for both the mother, the child as well as for successful lactation.
  Therefore:
- Food should be consumed according to appetite and the level of physical activity of the mother. Energy intake should be increased if the mother is underweight.
- Specific nutrient deficiencies such as insufficient dietary intake of iron, iodine and vitamin A should be detected and corrected early in pregnancy. These deficiencies can be corrected through optimal supplementation using multivitamins for pregnant and lactating women. Adequate rest during pregnancy should be encouraged and appropriate care and support should be provided during pregnancy.
- The use of alcohol/tobacco/other drugs during pregnancy is particularly harmful to the foetus. Smoking is associated with low birth weight, while the use of alcohol is associated with mental retardation in children as part of the fetal alcohol syndrome.

3.6 The Multiple Micronutrient Supplementation

Target groups	Supplement	Duration
Children (0 to 59 months) -with Severe Acute Malnutrition/TB/HIV	Multivitamin Syrup	6 months
Pregnant women - All	Complete micronutrient Calcium	Duration of Pregnancy
Lactating women - All	Complete micronutrient	6 months of lactation
Adults - Underweight with TB, HIV, AIDS	Complete micronutrient	6 months
Adults - Underweight	Complete micronutrient	6 months

Note:

- In the absence of the multiple micronutrient, provide a daily dose of iron and folic acid for pregnant women according to Maternity Care Guidelines
- Continue Iron and folic acid supplements, if already provided/started to the women.
- Continue Vitamin A supplements to young children according to existing Protocols.
- Give age-appropriate dose of Zinc to children with diarrhoea.
- Vitamin C rich foods e.g.: orange juice, guavas, tomatoes increases iron absorption and should be taken with these tablets.
  The following foods prevent iron absorption and should not be taken 1 hour before or 2 hours after these tablets: tea, coffee, milk or dairy products.
- Advice mother to continue breastfeeding and complementary feeding.

3.7 Growth monitoring and promotion

- All children less than 2 years of age should be provided with a Road-to-Health Booklet.
- To monitor growth, all infants/young children must be weighed regularly.
- The growth curve of each child should be recorded on the Road-to-Health Booklet.
- Routine weighing, plotting, interpretation and feedback are recommended monthly during the first two years of life, after that at three-month intervals up to age 5. This is to promote a good relationship between health workers with the parent(s)/caregiver and child, to detect problems early and to initiate appropriate interventions.
- If a child continues to have inadequate weight gain the child should be referred to the appropriate higher level of care for specialised evaluation.

3.8 Supplementation with High Dose Vitamin A Capsules (also refer to Vitamin A supplementation program Circular Minute No. G96/2012)

Vitamin A deficiency is the main cause of preventable blindness in children. Children who are vitamin A deficient suffer an increased risk of illness and death, particularly measles and diarrhoea. However, women of child-bearing age and school-age children are also at risk of developing vitamin A deficiency.

Studies have shown that supplementing children aged 6-60 months with vitamin A capsules dramatically increases their survival by:

(a) Reducing measles mortality by 50%
(b) Reducing diarrhoeal disease mortality by 33%
(c) Reducing all-cause mortality by 23%

Providing high-dose vitamin A supplementation to children who need them improves their vitamin A status, increases their resistance to disease, reduces the severity of illnesses and the length of hospital stays, and improves their chances for survival, growth and development.

The use of high-dose vitamin A supplementation should be seen as a short-term strategy to improve the vitamin A status of infants and children, other important strategies include the promotion of

breastfeeding, promotion of the consumption of vitamin A-rich foods and the fortification of staple foods with micronutrients including vitamin A.

Preventive vitamin A supplementation

The target groups for vitamin A supplementation are:

(a) Children aged 6 months to 11 months; and,
(b) Children aged 12 months to 5 years

Because vitamin A can be stored in the liver, it is sufficient to give high doses once every 6 months to children aged 6 months to 5 years through oral supplements for prevention.
At each health contact children should be screened to see if they should receive a dose of vitamin A according to the following schedule:

Table 3: Preventive Supplementation Protocol

Target groups	Dosage	Schedule
Infants 6-11 months	100 000 IU	A single dose at the age of 6 months *(can be given up to 9 months)*
Children 12-60 months	200 000 IU	A single dose every 6 months, from 12 months of age

Before giving a capsule:
Check the expiry date on the label;
Check the label to determine the dose *(100 000 IU or 200 000 IU)* of vitamin A supplement contained in each capsule;
Check/screen the child's age and when the last dose of vitamin A was received. *(Screen children for age in months);*
Verify on the child's *Road-to-Health Booklet* whether or not a child has received a dose within the last six months.

To give a capsule:
Cut the narrow end of the capsule with scissors and squeeze the drops into the child's mouth;
Help the child open his/her mouth by gently squeezing the cheeks;
Squeeze the drops from the capsule directly into the back of the child 's mouth. If a child spits up most of the vitamin A liquid immediately, give one more dose;
Do ***NOT*** give the capsule to the mother or the caretaker to take home.
The administration of high-dose vitamin A capsules for prevention and treatment should be **Recorded on the child's ROAD-TO-HEALTH BOOKLET.**

Vitamin A capsules do not need to be kept in the cold chain used for vaccines but should be kept out of direct sunlight and should be stored in a cool place.

The health worker (nurse or CCG) administering the capsule must keep records of the administration of the capsule on her tally sheet, and the pharmacy must record the amount of vitamin A dispensed.
Community Care Givers have now been granted authority to issue vitamin A to children that are 12 months up to 5 years according to the preventive dose supplementation schedule. Vitamin A issued by CCGs should be reported to the health facility for compiling as part of the facility statistics monthly coverage.

3.9 Health Facility gardens

The Department of Agriculture provides technical support to the Department of Health for the Implementation of Health Facility gardens. Health Facility gardens are one of the poverty alleviation strategies implemented in health facilities. The strategy focuses on developing skills and knowledge that enhances the potential of disadvantaged communities to live healthy lives. It links the health facilities to the community as it develops the gardening skills of patients, who are discharged into the community. The aim is to enhance the capacity of malnourished, chronically ill patients to be self-reliant in terms of their nutrition needs and households food security.

Aims:

- To strengthen collaboration with the Department of Agriculture.
- To impart basic gardening skills to chronically ill patients and parents/caregivers of malnourished children who are identified by the clinic personnel.
- To provide a sustainable strategy for exit from the PEM intervention.
- To promote and advocate for a strengthen education on nutrition.
- To facilitate development of door size gardens at the household level as an exit strategy.

4. SECONDARY TREATMENT INTERVENTIONS

4.1 Curative Vitamin A Supplementation

Children suffering from clinical vitamin A deficiency are high-risk cases. Children suffering from measles often are vitamin A deficient and consequently suffer serious complications. Vitamin A therapy significantly reduces the severity and case fatality rate of measles.

TABLE
Curative Supplementation Protocol

Target groups	Immediately on diagnosis (a) or (b)
Infants: 6 –11 months	100 000 IU
Children: 12–59 months	200 000 IU

The Road to Health Booklet should be carefully recorded and monitored to ensure this is done.

Children suffering from clinical vitamin A deficiency *(xerophthalmia)* or measles should receive a repeat dose *(according to their age group)*, the following day.

If children have received a preventive Vitamin A dose within the previous month, then they should not receive a curative high-dose vitamin A capsule.
Similarly, if Children have received a curative Vitamin A dose within the previous month, then they should not receive a preventive high-dose vitamin A capsule.

Possible side effects
There is a high margin of safety with giving mega-doses of vitamin A. Therefore,
Health Workers can confidently give recommended vitamin A capsules.

There are no contraindications to giving vitamin A supplements to children. The recommendations for safety are to wait at least one month between doses. Usually, when the correct age-specific dose of vitamin A is given with immunisation, there are no adverse side effects. On rare occasions, some children may experience some mild and transient side effects such as:

(a) Loose stools;
(b) Headache;
(c) Irritability;
(d) Fever; and,
(e) Nausea and vomiting.

Depending on age and the dosage given, the excess rate of occurrence of these mild symptoms has shown to be in the range of 1,5%-7%. These side effects disappear on their own in practically all children **within 24-48 hours.**

The administration of **excessive** amounts of vitamin A can lead to toxicity, known as hypervitaminosis A. However, this does not result from public health interventions programs. Rather toxicity has been associated with the abuse of vitamin A supplements *(single ingestion of 25,000 IU* ***per kg (i.e. ± 75 000 IU in a newborn)*** *or more).* Worldwide, the incidence of hypervitaminosis A is a very minor problem *(estimated 200 cases per year)* compared with the incidence and effects of vitamin A deficiency. Signs and symptoms of hypervitaminosis A may be delayed for 8-24 hours and include nausea, vomiting, diarrhoea, changes in humour *(irritability, drowsiness),* increased intra-cranial pressure *(headache, bulging fontanelle),* skin changes *(erythema, pruritus).* Peeling of skin around mouth may be observed from 1 to several days after ingestion and may spread to the rest of the body. **Treatment** of an acute overdose entails referral to the hospital, preferably the intensive care unit. The toxicity is slowly reversible but may persist for several weeks.

4.2 Management of Severe Acute Malnutrition: Refer to Circular Minute No 102/2012 on KwaZulu-Natal Provincial Guidelines on the Community Based Management of Acute Malnutrition for any further details on this programme.

Severe malnutrition is one of the most common causes of morbidity and mortality among children under the age of 5 years worldwide. Management of severe Acute Malnutrition (SAM) is one of the strategies implemented to improve child survival worldwide. Implementation of the protocol for managing SAM has been observed in many countries to reduce child mortality due to malnutrition by 50% especially if combined with early identification of these children.

In June 2012, KwaZulu-Natal reported all 52 health facilities with paediatric wards to be implementing the WHO Ten steps to managing severe malnutrition. According to the DHIS, the case fatality rate was 14% in 2010 and 10.3% in 2012. Whilst the national target for reduction in case fatality due to severe acute malnutrition is 10%, the WHO golden standard is<5%.

The two following two (2) protocols provides a summary of the treatment plan and the package for management of severe acute malnutrition that should guide facilities in implementation:

a) Protocol for the Inpatient Management of the children with Severe Acute Malnutrition
b) Severe Acute Malnutrition Emergency Treatment in South Africa.

PROTOCOL FOR THE IN-PATIENT MANAGEMENT OF CHILDREN WITH SEVERE ACUTE MALNUTRITION IN SOUTH AFRICA

"Severely malnourished children are different from other children; so they need different treatment."

CONDITION	PREVENTION	WARNING SIGNS	IMMEDIATE ACTION
1.Hypoglycaemia *(Low blood sugar)* Hypoglycaemia is a blood glucose <3mmol/L	For all children:- 1. Feed immediately "stabilizing feed" /F75 every 3 hours (8 feeds), day and night. Start straightaway i.e. on arrival at hospital and within 30 minutes after admission. (Use feeding chart to find amount to give). 2. Encourage mothers to stay with very ill children to watch for any deterioration, help feed and keep child warm.	1. Low temperature (hypothermia) noted on routine check. 2. Child feels cold. 3. Child becomes drowsy or lethargic. 4. Signs of Shock 5. If blood sugar is low, monitor blood sugar every 30 minutes to 60 minutes and intervene accordingly.	Perform Dextrostix test in outpatients/casualty and on admission on all patients. **If conscious and blood sugar is below 3 mmol/L:-** 1. If hypoglycaemic, feed 2hourly (12 feeds in 24 hours). Use feeding chart to find amount to give. Start straightaway. 2. Give 50 ml of 10% glucose (to **prepare mix** 10ml 50% dextrose with 40ml sterile water) or sugar solution (1 rounded teaspoon sugar in 3 tablespoons of plain water) **orally or if child refuses, via nasogastric tube (NG tube).** If 10% glucose is not available, give sugar solution or F75 rather than wait for glucose. Test again 30 minutes after treatment. If blood sugar is still low, repeat **oral** 50ml 10% glucose or sugar solution. Consider putting up a short IV line. **If unconscious,** give dextrose **IV** (2ml/kg of sterile 10% glucose: prepare **1ml/kg 50% dextrose mixed with 4ml/kg sterile water**), followed by **oral** 50ml of 10% glucose or **oral** sugar solution or **via NG tube. Monitor response to treatment.** 3. Monitor blood sugar 3-hourly until stable especially in first 48hours. If blood sugar is persistently low, review feed and look for infections.
2. Hypothermia *(Low temperature)* Hypothermia is Axillary/underarm temperature <35^{0}C	For all children:- 1. Feed straightaway and then every 2-3 hours, day and night. 2. Keep warm. Cover with a blanket. Let mother sleep with child to keep child warm. 3. Keep room warm, no draughts. 4. Keep bedding/clothes dry. Dry carefully after bathing (do not bathe if very ill). 5. Avoid exposure during examinations, bathing.	1. Cold extremities 2.Lethargic 3. Poor appetite NOTE: Hypothermia in malnourished children often indicates co-existing hypoglycaemia and serious infection.	Take temperature at outpatients/casualty and on admission. (Ensure thermometer is well shaken down). **If the temperature is below 36^{0}C**: 1. Begin feeding straightaway (or start rehydration if diarrhoea with dehydration). 2. Active re-warming: Put the child on the mother's bare chest (skin- to - skin contact) and cover the child. Cover the child's head, clothe the child, apply a warmed blanket and place a heater or lamp nearby. 3. Feed 2-3hourly (8-12 feeds in 24 hours). **Monitor during re-warming** • Take temperature every two hours: stop active re-warming when temperature rises above 36.5^{0}C • Take temperature every 30 minutes if heater is used because the child may become overheated.
3. Some or Severe Dehydration (without Shock) *(Too little fluid in the body)*	1. When a child has watery diarrhoea, give 10ml/kg Oral Rehydration Solution (ORS) after each loose stool to replace stool losses to prevent dehydration. 2. Treat some or severe dehydration with ORS to prevent severe dehydration	Profuse watery diarrhoea, sunken eyes, slow skin pinch, absent tears, dry mouth, very thirsty, reduced urine output.	**DO NOT GIVE IV FLUIDS EXCEPT IN SHOCK** (see Emergency Treatment Wall Chart for treating shock) **If there is some or severe dehydration:** 1. Give ORS, oral or by NG tube, 5 mL/kg every 30min for 2hours using frequent small sips. 2. Then give ORS (5-10ml/kg) and F75 in alternate hours for up to 4-10 hours. Show the caregiver how to give ORS with a cup and spoon If child vomits wait 10 minutes and then continue more slowly. 3. Stop ORS when there are 3 or more hydration signs, or signs of overhydration. **Monitor during rehydration for signs of**

	or shock		**overhydration:** • increasing oedema and puffy eyelids • increasing pulse and respiratory rate • Check for signs at least hourly. Stop if pulse increases by 25 beats/minute and respiratory rate by 5 breaths/minute. Encourage caregiver to continue breast-feeding. **Review at least hourly** general condition, capillary filling time, level of consciousness, skin turgor, sunken eyes, respiratory rate, abdomen, if passing urine and number/quality of stools – If shock redevelops, treat for shock (see Emergency Wall Chart). If dehydration is improving – continue for up to 10 hours If there is no dehydration go to prevention 10ml/kg ORS orally after each loose stool If dehydration is not improving consider IV fluids with great care.
4. Electrolyte imbalance *(Too little potassium and magnesium, and too much sodium)*	1. Use ORS 60mmol sodium/L and F75 formula as these are low in sodium. 2. Do not add salt to food. 3. **Do not treat oedema with diuretics** **Give extra potassium and magnesium (either as CMV in feeds or as a supplement)**	Oedema develops or worsens, poor appetite and apathy	1. If the child is on Stabilizing feed **with added** minerals and vitamins (CMV) they will receive the necessary Potassium, Magnesium, Copper and Zinc within their feeds daily, **or** 2. **Give daily**: extra potassium (4mmol/kg/day body weight) and magnesium (0.4-0.6mmol/kg/day). **For potassium**, give Oral *Mist Pot Chlor* (MPC) solution: MPC 1ml/kg 8 hourly (1ml=1mmol K+), **AND** **Trace element mix** (contains MgSO4 280mg/ml, ZnSO4 36mg/ml, CuSO4 0.1mg/ml,) daily orally, **or magnesium individually**, give a single IM injection of 50% magnesium sulphate (0.3ml/kg body weight) to a maximum of 2ml. or 1ml of 2% MgS04 daily mixed with food.
5. Infections	1. Good nursing care 2. Reduce overcrowding if possible (separate room or ward for malnourished children) 3. Wash hands before preparing feeds and before and after dealing with any child. 4. Follow Guidelines for "safe preparation, storage and handling of feeds" 4. Give measles vaccine to unimmunized children over 6 months of age.	NOTE: The usual signs of infection, such as fever, are often absent so assume all severely malnourished children have infection and treat with antibiotics. Hypothermia and hypoglycaemia are signs of severe infection. NOTE: Ensure all doses are given. Give them on time.	Starting on the first day, give antibiotics to all children. 1. If the child is severely ill (apathetic, lethargic) or has complications (hypoglycaemia, hypothermia, raw skin/fissures, meningitis, respiratory tract or urinary tract infection) give IV/IM Ceftriaxone 100mg/kg/day 2. If the child has medical complications but not seriously ill, give IV/IM Ampicillin: 50mg/kg IM/IV 6-hourly for 7 days AND Gentamicin: 7.5mg/kg IM/IV once daily for 7 days. *3.* If the child has no medical complications, give antibiotics orally Amoxicillin15mg/kg 8-hourly for 5 days *4.* If a child fails to improve after 48 hours, search for new infection, then change to Ceftriaxone 100mg/kg daily IM/IV for 5-7 days (or guided by local microbiological flora). NOTE: Avoid steroids as these depress immune function. Give measles vaccine if due. Continue use of cotrimoxazole to prevent PCP pneumonia if indicated. *5.* Treat for intestinal infestation (parasitic worms) once stable: 1-2 yrs old or < 10kg Mebendazole 100mg po bd for 3 days > 2 yrs and > 10kg Mebendazole 500mg po single dose Investigate for TB. Do Tuberculin Skin Test and read it within 48 hours. Record the findings.

			Counsel and Test for HIV. Record the findings.

CONDITION	MANAGEMENT
6. Micronutrient Deficiencies	**Give**: 1. ***Vitamin A orally on day 1.*** If under 6 months give 50,000 units; if 6-11 months give 100,000 units; and if 12-59 months give 200,000 units. If the child has any signs of vitamin A deficiency (eye changes: xeropthalmia/drying of the eye) or severe measles, **repeat** this dose on day 2. Folic acid 2.5mg daily orally (5mg on day 1). (Folic acid is in CMV, if CMV is used in feeds then give only the 5mg dose of day 1) 3. Multivitamin syrup 5 ml daily orally (Multivitamins are in CMV, so if CMV is used in feeds then omit the syrup 4. If the child is on Stabilizing feed **with added** minerals and vitamins (CMV) they will receive the necessary Potassium, Magnesium, Copper and Zinc within their feeds, **or** 5. If CMV is not used, give daily orally **trace element mix (TEM)** (ZnSO4 36mg/ml, CuSO4 0.1mg/ml, MgSO4 280mg/ml): 2.5ml if weight up to 10kg OR 5ml if weight ≥ 10kg 6. If CMV or TEM not available then give Zinc (2mg/kg body weight/day) and copper sulphate solution (0.3mg Cu/kg body weight/day). 7. Start iron (3mg/kg/day) when you change to the F100 catch-up formula. **(DO NOT GIVE IRON IN THE INITIAL & STABILISATION PHASE EVEN IF ANAEMIC)**
7. Stabilization feeding (stabilisation phase)	1. Give stabilizing feed (F75- feeding chart for volumes). These provide Energy: 100kcal/kg/day and Protein: 0.9g /kg/day. The fluid requirement is130ml/kg/day. 2. Give 8-12 feeds over 24 hours. Monitor intake and output (vomiting, diarrhoea, urine output) in Feed Chart/Fluid Balance Charts. Keep a 24-hour intake chart. Measure feeds carefully. Record leftovers. 3. If the child has gross oedema (Oedema 3+), reduce the volume to 100 ml/kg/day (see F75 feed chart for gross oedema for volumes) 4. If the child has poor appetite, encourage the child to finish the feed. If not finished, keep the leftovers and re-offer later. If less than 80% of the amount offered is not taken, insert a nasogastric tube in order to feed the child. If in doubt, check feeding chart for intakes. 5. If the child is breastfed, encourage continued breastfeeding. 6. Weigh daily and plot weight daily.
8. Transition feeding and Catch-up growth rehabilitation phase	1. Transition to catch-up feed (F100) as soon as appetite has returned (usually within one week) and/or oedema is lost or is reduced. Change to F100 (this provides energy: 150-220Kcal/kg/day and Protein: 4-6 g/kg/day). **Transition Phase**: for 2 days, replace F75 with the same amount of F100. On day 3, increase each feed by 10ml until some feed remains. 2. Give 8 feeds over 24 hours. As the child is eager to eat, progress to 5 feeds of F100 and 3 specially modified family meals, high in energy and protein. Ready-to-Use Therapeutic Food (RUTF) may be introduced and given at discharge for catch-up growth. 3. Encourage the child to eat as much as possible, so that the child can gain weight rapidly. If the child has finished everything, offer more and increase subsequent feeds. Make sure that the child is actively fed. Involve the mother/caregiver in the feeding all the time. 4. Weigh daily and plot weight daily. Use daily weight chart for recording and monitoring weight changes.
9. Loving care, play and stimulation	1. Provide tender loving care 2. Help and encourage mothers to comfort, feed, and play with their children 3. Involve mother/caregiver in all the play/stimulation exercises. 4. Involve an occupational therapist and /or physiotherapist to plan a stimulation programme for the ward. 4. Give structured play when the child is well enough.
10. Preparation for follow-up after discharge	**1. Investigate for TB**. Repeat Tuberculin Skin Test if initial response was negative, and read it within 48 hours. Record the findings. **2. Ensure counselling and Test for HIVs was done. Record the findings.** **3.** Involve mother in the discharge process and follow-up plans. 3. Obtain information on family background and **socio-economic status**. Refer to Social Services (SASSA, Social Development, Home Affairs) and/or hospital social workers **4. Give health and nutritional education.** Issue mother/caregiver with the **Family Booklet for Child Health**. Share educational messages about the child and self or example, Family Practices booklet containing information on when to return urgently to Clinic, hygiene, infant feeding and complementary feeding advice, stimulation, family planning, HIV, immunization, role of male partner). Work with Dietician to counsel mothers/caregivers on how to modify family foods, how often to feed and how much to give. **5. Register** child on **the Severe Acute Malnutrition In-Patient care register**. Ensure the child is counted onto the district health information system (**DHIS**) admissions, discharges and/or deaths tally

	sheet. 6. Establish a link with local PHC Clinic and family's local Community Care Givers (CCG's) for **home follow-up**. **7. Step down and discharge criteria**: Refer to outpatient care when there are signs of improvement: Good appetite, infection resolved, oedema resolved AND consecutive satisfactory weight gains for 5 days (>5g/kg/day) or 15% weight gain. Continue monitoring rapid catch-up growth when in outpatient care while on therapeutic feeding regimen. **Discharge as fully recovered/Cured** from nutritional supplementation program when target MUAC ≥12.5cm or WHZ reaches -1SD. 8. Prepare a **Discharge Summary** and write a brief clinical summary in **RTHB**. 9. Send a **referral letter to the local PHC clinic**. Ensure child is enrolled on nutrition supplementation programme at local clinic or child returns to hospital outpatient in one week.

SEVERE ACUTE MALNUTRITION EMERGENCY TREATMENT IN SOUTH AFRICA

Complicated cases of Severe Acute Malnutrition have a very high risk of dying during first 48 hours of admission. Early recognition of emergency signs and early treatment will improve likelihood of survival in hospital.

CONDITION	IMMEDIATE ACTION
Treat shock Shock is suspected in these children if the child is lethargic or unconscious, and cold hands **Plus either:** Weak fast pulse **or** Slow capillary refill (longer than 3 seconds) **Monitor closely:** children in shock need frequent monitoring of vital signs (pulse rate and volume, respiratory rate, urine output, glucose, etc)	**If child is in shock:** 1. Give oxygen. Treat and prevent hypoglycaemia and hypothermia. 2. Give IV 0.9% Normal Saline bolus fluid at 10ml/kg over 10minutes. Monitor response. 3. **If there are signs of improvement** (e.g. slower pulse and respirations) repeat bolus 10ml/kg over 10 minutes, until max 40ml/kg in 1 hour. Each time, check response to previous bolus before giving further fluid. Then switch to oral rehydration if further fluid is needed. **If there are no signs of improvement** assume child has ***septic shock***: ✓ Admit to ICU for CVP line. Start inotropic support. ✓ Start broad-spectrum antibiotics (Ceftriaxone). Treat and prevent hypoglycaemia/hypothermia. ✓ Admit the child to high care bed for monitoring. Discuss further case management with your referral hospital. 4. Only transfer the child to ward once signs of shock have resolved.
Treat very severe anaemia Severe anaemia is Hb<4g/dL	**If very severe anaemia** (or Hb 4-6g/dl AND respiratory distress): 1. Give packed cells 10ml/kg body weight slowly over 4 hours. If signs of heart failure, give 5-7ml/kg packed cells. 2. Give furosemide 1mg/kg IV at the start and end of the transfusion. **NB Keep a close eye for signs of fluid overload: further tachycardia, gallop rhythm, breathing even faster, puffy eyelids, enlarging liver size**
Treat hypoglycaemia Hypoglycaemia is a blood glucose <3mmol/L Assume hypoglycaemia if no dextrostix available	Test blood glucose level 3 hourly, you can stop testing when it is normal and stable for 24 hours provided the child is not severely ill[1]. ▪ If the blood glucose <3 mmol/L in asymptomatic child, give orally or by NG tube: o immediate feed of a "stabilizing feed (F75)", **or** o 50ml bolus of 10% dextrose, **or** o sugar solution 5 ml/kg o Re-Check the Blood Glucose after 30 min, if normal continue normal feeds, monitor blood glucose to see it remains above 3 mmol/L. ▪ If symptomatic or unresponsive hypoglycaemia give dextrose 10%[2], IV, 2 ml/kg over 2-3 minutes[3]. **Re-Check the Blood Glucose after 30 min, if normal, continue feeds, monitor blood glucose to see it remains above 3 mmol/L.**
Treat hypothermia Hypothermia is axillary/underarm temperature <35^{0}C.	Take temperature at outpatients/casualty and on admission in the ward. (Ensure thermometer is well shaken down). **If the temperature is below 36^{0}C**: 1. Begin feeding straightaway (or start rehydration if diarrhoea with dehydration). 2. Active re-warming: Put the child on the mother's bare chest (skin-to-skin contact) and cover them. Cover the child's head. Or clothe the child, apply a warmed blanket and place a heater or lamp nearby. 3. Feed 2-3hourly (8-12 feeds in 24 hours). **Monitor during re-warming** • Take temperature every two hours: stop active re-warming when temperature rises above 36.5^{0}C. Take temperature every 30 minutes if heater is used because the child may become overheated.
Emergency Eye Care Corneal Ulceration is a sign of severe Vitamin A deficiency.	**If corneal ulceration:** 1. Give Vitamin A immediately (<6 months 50,000IU, 6-11 months 100,000 IU, 12-59 months 200,000IU) and **repeat** same dose the following day. **Record dose given in prescription chart and RTHB.** 2. Instil one drop atropine (1%) into affected eye to relax the eye and prevent the lens from pushing out. *Note: All children with clinical signs of vitamin A deficiency and children with measles should receive vitamin A on days 1 and 2.*

[1] If severely ill continue 3 hrly blood glucose testing

[2] Mix 0.5ml/kg 50% Dextrose with 2 ml/kg of water for injection in a syringe – give 2ml/kg of the resulting 10% dextrose solution/ alternatively give 2ml/kg neonatal maintenance solution which also contains 10% dextrose.

[3] Previously 5 ml/kg – recent APLS suggests 2ml/kg.

4.3 Details on Entry and Exit Criteria for Therapeutic Feeds

4.3.1 Screening

The Nutrition Risk Screening Tool (Annexure B) is to be used to assess the Nutrition Risk for the client and to decide on appropriate Nutrition Intervention to give. The Nutrition Risk Screening Tool considers different indices presented by the patient and that includes growth or weight assessment, ability to eat and disease conditions. This should guide on whether a patient is at nutrition risk for them to be provided with therapeutic supplementation. It is important that the Nutrition Risk score is repeated at every visit and it should be assessed whether a patient still requires supplementation. Patients receiving therapeutic supplementation should be informed on their initial provision that supplementation is only the interim intervention according to the entry and exit criteria in the Nutrition Risk Screening tool. When a patient is exiting the programme, it is very important to follow up with primary interventions.

4.3.1.1 Children 0 - 14 years of age

Any child, especially those below the age of two years who shows growth faltering over 2 consecutive visits, should be included in the food supplementation programme. The following should be completed before entry onto the intervention:

Assess the child using the Nutrition Risk Screening tool and determine the appropriate intervention.

If necessary, enrol the child onto the food supplementation intervention and provide appropriate nutrition counselling.

It is strongly recommended that when breastfeeding has to be temporarily delayed or interrupted, mothers should be helped to establish or maintain lactation through, for example, manual or hand pump expression of breast milk to maintain milk production.

Monitor the child monthly for weight gain.

Where the community health workers or nutrition advisors are available, they should follow up the child at home.

A well-structured referral system should be developed to ensure the child receives the most appropriate care.

4.3.1.2 Pregnant women

It is recommended that all at-risk women (those who gain inadequate or excessive weight) should be closely monitored. The following guidelines can be used for assessment:

(i) Women with a BMI < 18.5 or > 30 at the time of conception (For BMI calculation see ANNEXURE D)
(ii) Women whose height is < 1.5 m at the time of conception
(iii) Pregnant adolescents (<18 years of age)
(iv) Inadequate weight gain i.e.
- < 2,3 kg weight gain during the 1st trimester
- < 0,49 kg ***per week*** weight gain during the 2nd trimester and 3rd trimester
- < 12,5 kg ***total*** weight gain for entire pregnancy for underweight women

(v) Women with short birth intervals (< 1 year)
(vi) Women with previous pregnancies: 3 or more to mothers < 20 years, or 4 or more for mothers > 20 years of age
(vii)Women with history of low birth weight infants

Pregnant women should be placed on the food supplementation intervention by:

Assessing the woman using the nutrition risk screening tool and determining the appropriate intervention

If necessary, enrol the woman onto the food supplementation intervention and provide appropriate nutrition education. Monitor the woman monthly for weight gain.

4.3.1.3 Lactating women

Lactation imposes an additional requirement for energy and nutrients on women. It is important to provide dietary counselling on healthy eating when breastfeeding is initiated. Mothers under the following conditions will require supplementation:

Assess the woman using the nutrition risk scoring tool and determine the appropriate intervention. If necessary, enrol the woman onto the food supplementation intervention and provide appropriate nutrition education.

4.3.1.4 TB, HIV and AIDS and other chronic, debilitating illnesses

Poor nutrition and disease are strongly related since the one problem worsens the other and can be considered a vicious cycle. One of the ways this cycle can be broken is through good nutrition. Good nutrition improves immunity, appetite, and quality of life and decreases morbidity.

Poor food intake, abnormal losses of nutrients and higher nutrient need in sick people result in weight and muscle loss, depressing the body's immune system and thus increasing the risk of opportunistic infection.

Primary interventions aimed at nutrition education around healthy eating and coping with complications in chronic and communicable diseases are essential.

The following TB, HIV and AIDS, elderly or other chronically ill persons should be placed on the food supplementation intervention by:

(i) Assessing the person using the scoring system on NRST (For BMI calculations see ANNEXURE D) and determine the appropriate intervention.
(ii) Monitoring the person monthly for weight gain.

4.3.2 Exit Criteria from Receiving Therapeutic Supplementation

Exit criteria for each target group have been identified in ANNEXURE B.

- The Nutrition Risk Score (ANNEXURE B) should be repeated at each visit and persons improving in their nutrition score will be exited from receiving therapeutic supplements.
- After exiting, people are still at risk for malnutrition and need to be followed up monthly and re-scored.
- If any persons show no improvement in their nutrition score after six months of intervention, it will be assumed that the intervention is inadequate and these persons should be exited from receiving therapeutic supplements.

A well-developed referral system at this point is critical to maintain the improved nutritional status and linking at risk persons to community programmes and clinic or facility gardens. Primary intervention (Point 3) should be continued on exit from the therapeutic supplementation intervention.

4.4 Products to be used for Nutrition Rehabilitation

Facilities should familiarize themselves with the Nutritional Products that are on RT9-Tender. All products prescribed that are on tender should be procured on the tender that is in place at the time. Should a facility require using any product that is not on tender, a quotation system as per Departments Supply Chain Management policies should be strictly adhered to. **Annexure C** prescribes the products and the amounts to be issued to patients per targeted category.

5. ACCESSING FUNDS

5.1 District Nutrition Services Budget

District nutrition coordinators are expected to compile business plans on yearly basis and submit to district managers to request for allocation of funds for activities for the Integrated Nutrition Programme as stipulated in this document. Districts are allocated funds from the equitable share. Institutions are also expected to allocate funds for supplements used within institutions.

5.2 Provincial Nutrition Budget

The Province will all be allocated funds from the equitable share for procurement of certain items that need to be standardized such as nutrition training material and IEC materials. These will be distributed to districts equitable after procurement. Facilities should always contact district offices for stock to ensure proper paper trail during distribution.

6. REFERRAL BETWEEN HEALTH FACILITIES AND THE COMMUNITY

The major focus of the nutrition interventions at health facilities is to reduce the high prevalence of malnutrition and micronutrient deficiencies, especially in children and women. Obviously these target groups form part of a larger family unit, which may be in need of assistance.

Community Involvement

Community members e.g. community health workers, care groups, CBO's, NGO's, etc., should be involved in identifying target groups and referral to health facilities.

Community Care Givers / Family Health Teams

Interventions and nutrition messages from the health facilities through to the community should be consistent. Community Care Givers (CCGs) should be trained in primary interventions, especially with regards to reinforcing nutrition education and counselling. Community Care Givers and Family Health Teams (FHTs) should be able to also refer cases that may require supplementation to the relevant local institutions.

Community Based Growth Monitoring

Community Care Givers could be involved in monitoring and follow -up of the effectiveness of the nutrition interventions at health facilities and the referral between the health facilities and the community. This should be a two-way process. Referrals should not be limited to the DOH, but should include the following:

- Child support, foster grants, HIV and AIDS or disability grants
- Department of Social Services: Food vouchers; various social grants
- Local NGOs
- Department of Agriculture: Food production packs
- Clinic or facility gardens, home gardens
- Pension Fund

Sustainability

Interventions at health facilities are a short-term measure. The referral system to the community-based activities, therefore should aim at stimulating involvement in development efforts that will support communities and households to become self-supporting.

Framework for linking the health facilities to the community

A two-way referral system of individuals at risk should be established between the hospital, the community health centre, the clinic and the community. A standardized referral letter should be used as a two-way tool for effective communication.

Nutrition education messages and the acquisition of skills should be strengthened throughout the referral system.

Identify groups in the community, such as community health workers, who will be responsible for the follow-up of the *at risk individuals/families*, nutrition education, growth monitoring and capacity building.

Establish two-way communication and information channels between health facilities and the community.

Link interventions at health facilities to local food production projects in the community e.g. food gardens with vitamin A rich produce and small-scale commercial production of foods.

Establish a feedback mechanism for data on growth monitoring and other nutritional indicators between health facilities and the community. For this purpose, community health days may be appropriate and effective.

7. MONITORING

Monitoring

Monitoring of the nutrition interventions at health facilities should be done through the District Health Information System.

Aim

The aim of monitoring is:

(i) To provide programme managers with information regarding the implementation of health programmes, its achievements and the area(s) that require adjustments and/or additional attention.

(ii) To provide health workers and the community with information to identify problem areas, which resources are required and to give feedback to programme managers.

A well designed information system for programme(s)/project(s) monitoring is an important element for success. This information system must be operational at all levels of care, should have a clear definition of the type of decisions to be made at each level of care and should define the specific data needed to make these decisions.

The information required should be collected from each facility and sent to the DHIS monthly. The DIO collects the information from the DHIS, and sends it to the provincial office. The provincial office forwards it to the National office.

Monitoring of nutrition supplements stock issued at the clinic/CHC level is the responsibility of the District Management team. This information is not required at Provincial level.

Provincial Indicators for the Nutrition Programme collated every quarter

No	Nutrition Indicator	Indicator Definition
1	Vitamin A coverage 12–59 months (annualized). *Output indicator*	Percentage of children 12-59 months receiving vitamin A 200,000 units twice a year.
2	% of Vitamin A given to severe acute malnourished children under 5 years - curative dose.	Percentage severe acute malnourished children under 5 years given Vitamin A curative dose (during this admission or in the past 30 days, including that given at PHC (see RTHB for last dose given)).
3	Prevalence of underweight children under-5 years	Percentage of children under 5 years that were weighed and presented with a weight-for-age of below -2 standard deviations
4	Child under 2 underweight for age incidence (annualised) NIDS	Children under 2 years newly diagnosed as underweight (weight between -2 and -3 standard deviations) per 1000 children under 2 years in the population
5	Underweight for age under 5 years incidence (annualised)	The proportion of all children under 5 years weighed who were identified as having a weight-for-age of below -2 standard deviations.
6	Weighing coverage under 1 year (annualized).	The children <1 year weighed during the reporting period as a percentage of the total number of expected weighing in the target population. Expected weighing is defined as one weighing per month (12 per year) for children under 1 year.
7	% of children under 5 years not gaining weight (growth faltering and growth failure / Moderate Acute Malnutrition).	The percentage of children weighed presenting with growth faltering or growth failure for 2 consecutive visits. (Refer to RtHB)
8	Severe acute malnutrition under 5 year incidence (annualised)	The number of children who present with visible severe wasting or a weight-for-height or weight-for-age below -3 standard deviations or with Oedema of both feet, or MUAC < 11.5, or who suffer from Marasmus, Kwashiorkor, or similar, excluding new-born babies) - (**new** cases that month) per 1 000 children in the target population.
9	Percentage of children under 5 years admitted with severe acute malnutrition.	The percentage of children under 5 years who are assessed and admitted to be Severe acute malnourished (visible severe wasting, weight for height below -3SD, or with Oedema of both feet, or MUAC < 11.5), or to suffer from Marasmus, Kwashiorkor, or similar, excluding new-born babies.

10	Severe acute malnutrition case fatality rate under 5 years	The number of children under 5 years who died in the ward during the reporting period due to severe acute malnutrition assessed at admission. This does not include patients who died before being admitted.
11	Early Initiation of breastfeeding	Proportion of babies who have initiated breastfeeding (who were put to the breast) within one hour of birth
12	Rate of Infants exclusively breastfed at Hep B3	Proportion of infants reported exclusively breastfed at 14 weeks Hepatitis B 3rd dose vaccination. Includes all infants that have received only breast milk in the last 24 hours at their 14 week EPI visit for hepatitis B vaccine 3rd dose. Excludes infants that received breast milk substitutes such as formula feeds or mixed fed or fed other substances such as water, juice and other foods except medicines in the last 24 hours.
13	Number of hospitals certified as mother and baby friendly. (annual)	Mother and Baby Friendly hospitals are health facilities that are accredited with MBFI status
14	Number of underweight Pregnant women receiving therapeutic supplements.	Pregnant women presenting with a nutrition risk screening tool score >4 receiving therapeutic supplements
15	Number of underweight lactating women receiving therapeutic supplements.	Underweight lactating women presenting with a nutrition risk screening tool score >4 receiving therapeutic supplements
16	Number of underweight HIV+ patients 15 years and older receiving therapeutic supplements.	HIV positive patients 15 years and older presenting with a nutrition risk screening tool score >4 receiving therapeutic supplements
17	Number of underweight TB patients 15 years and older receiving therapeutic supplements.	TB patients15 years and older presenting with a nutrition risk screening tool score >4 receiving therapeutic supplements
18	Number of undernourished children under 5 years of age receiving therapeutic supplements.	Number of children < 5yrs diagnosed as underweight, or moderate acute malnutrition or severe acute malnutrition as per the nutrition risk assessment and screening tool (NRAST) receiving therapeutic supplements(
19	Child under 5 food supplementation coverage (annualised) NIDS	Children under 5 newly started on food supplementation as proportion of population under 5 years
20	Number of fixed clinics visited by a Dietitian per quarter	Number of fixed clinics visited by a Dietitian (only clinics visited for the first time in the reporting year should be counted)
21	Vitamin A supplementation by CCG	Number of Vitamin A doses given to children 12-59 months
22	MUAC by CCG	Number of MUAC screening done (green, yellow and red)

Raw data on indicators will be sent from the health facilities to district information officer (DIO) every month.

Districts Managers are expected to submit quarterly reports to the province that include performance on all the nutrition indicators indicated above. A summary narrative of the Nutrition Programme priority interventions should also be submitted to Province quarterly.

Reports will be submitted to the national office with regard to programme implementation and financial control. Feedback will be given to districts quarterly and via the annual report.

Consultation with communities is recommended in order to determine knowledge levels and to seek advice on the best means to deliver nutrition messages to individuals, groups, or during community health days.

8. EVALUATION

The aim of this is to assess the impact and effectiveness of the programme. The results of evaluation studies will inform decision-making on adjustments, continuation, expansion or contraction of the programme. Evaluation could be done in two stages namely operational impact and nutritional impact.

Evaluation is done via survey, for example, rapid assessment, national surveys (normally done every five years), demographic health surveys.

9. CONCLUSION

It is the responsibility of the District Management Team to ensure that the staff is provided with adequate support to perform Integrated Nutrition Programme activities effectively (budgets, transport, staff and time to monitor). These implementation guidelines should make it easier for districts and institutions to understand and prioritize interventions that will improve the Nutrition situation in KZN. The onus is on the districts themselves to ensure success and sustainability.

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11. ANNEXURES

ANNEXURE A: UNICEF CONCEPTUAL FRAMEWORK ON MALNUTRITION

ANNEXURE B: NUTRITION RISK SCREENING TOOL (ENTRY AND EXIT CRITERIA)

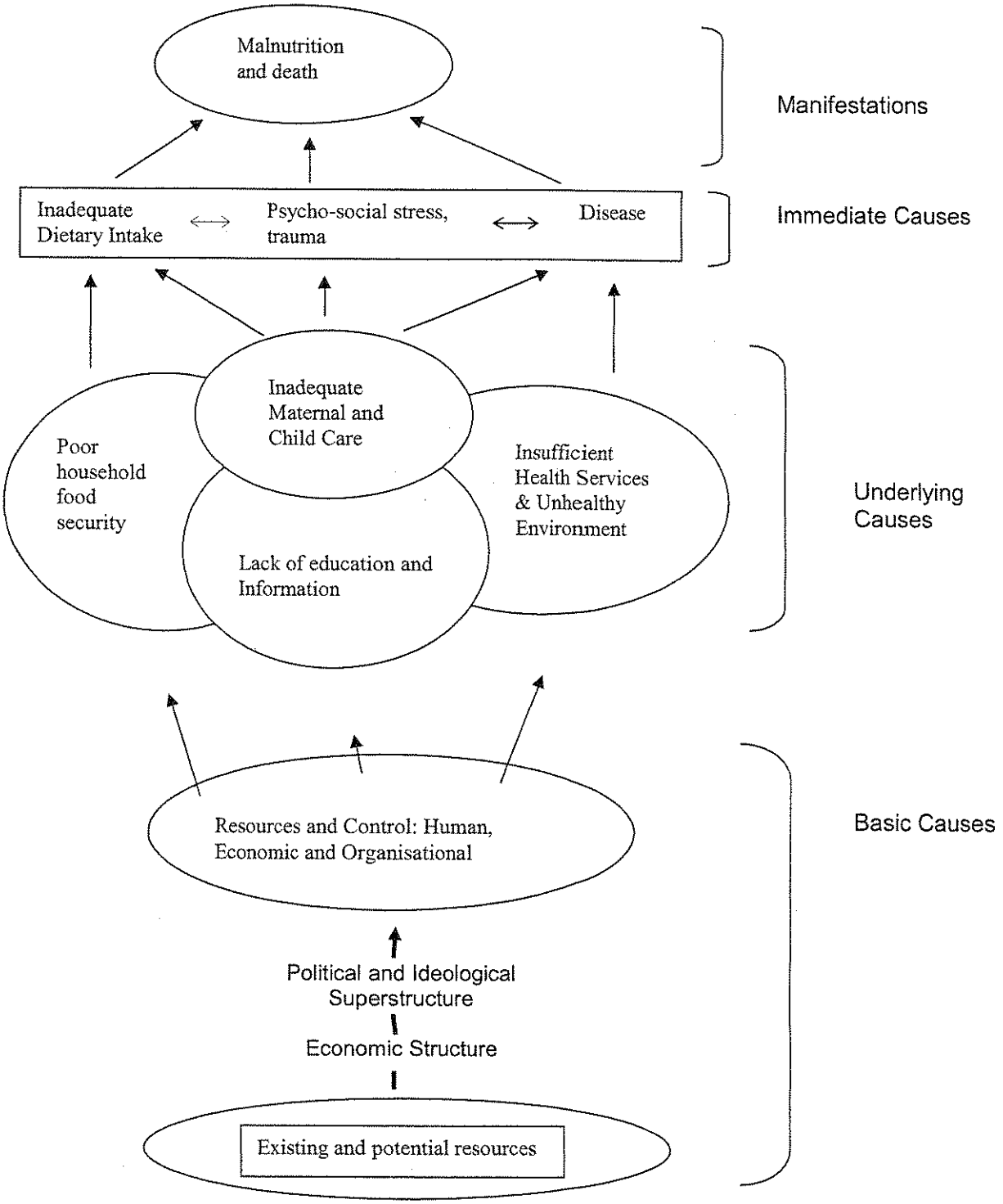
ANNEXURE C: PRODUCTS FOR THERAPEUTIC SUPPLEMENTATION PROGRAMME

ANNEXURE D: BMI CALCULATION

ANNEXURE E: SOUTH AFRICAN FOOD GUIDE

ANNEXURE A

THE UNICEF CONCEPTUAL FRAMEWORK
ON MALNUTRITION (Negative approach)



ANNEXURE B

Column 1 NUTRITION RISK SCORE	Column 2 ASSESSMENT	Column 3 EXIT CRITERIA
Is the child malnourished? **Present weight RTHC/ CDC chart** • **Growing well** 0 • **Not growing well (flat growth/wt loss)** 2 • **Wt for age falls below -2 Z-score line** 4 • **Wt for age falls below -3 Z-score line** 6 **OR** **MUAC (6mo. – 60months) <115mm** 4 **MUAC (5 – 9 years) <129mm** 4 • **MUAC (10 – 14 years) <160mm** 4 1. **Appetite** • **Good (most of plate eaten)** 0 • **Poor (½ plate eaten)** 2 • **Unable to eat (no food eaten for last four meals)** 3 2. **Ability to eat** • **No problems** 0 • **Mild vomiting/diarrhoea** 1 • **Difficulty swallowing/chewing, e.g. mouth sores** 2 • **Need help with feeding** 2 • **Severe vomiting/diarrhoea** 3 3. **Other Problems** • **None** 0 • **TB/HIV/AIDS** 2 • **HIV/AIDS & other infections e.g. TB** 3	**If Score is –0-3** "Not currently at nutrition risk" Primary Intervention • Nutrition Education (if applicable) • Exclusive breastfeeding for 6 months and continued breastfeeding up to 2 years • Appropriate caring practices, in particular complementary feeding which addresses appropriate feeding practices in terms of energy intake, nutrient density of meals, and frequency of meals. • Consumption of micronutrient-rich foods • Safe food preparation & environmental hygiene issues. **4-5 Nutrition "At risk"** • **Start with Primary intervention** (as above) • Provide Therapeutic Supplements • Monitor weight monthly **If score >6** "Malnourished" • Therapeutic Supplementation • Reassess monthly	**The Nutrition Risk Score in column 1 should be repeated at each visit.** • Persons will no longer require Therapeutic supplementation if: If Score <4 • Reassess score monthly/ assess at every visit **If Score >4 with:** • No improvement in nutrition score for 6 months • Or if the client is re-scored as <4 N.B. When patient is exiting the programme it is very important to follow-up with Primary Interventions & Monthly monitoring [Column 2].
GO TO COLUMN 2 →	**GO TO COLUMN 3 →**	

NB TO GET A NUTRITION RISK SCORE, POINTS FOR EACH QUESTION IN COLUMN 1 NEEDS TO BE ADDED!

Therapeutic Supplementation: Entry & Exit criteria Adults TB, HIV/AIDS & Others

Column 1 NUTRITION RISK SCORE	Column 2 ASSESSMENT	Column 3 EXIT CRITERIA
Is this adult malnourished? 1. Weight loss in last 3 months • None 0 • 3kg lost [<1 clothes size] 1 • 3-6kg lost [1-2 clothes size] 2 • >6kg lost [>2 clothes size] 3 2. BMI • >20 0 • 18-19 1 • 15-17 2 • <15 3 3. Appetite • Good (most of plate eaten) 0 • Poor (½ plate eaten) 2 • Unable to eat (no food eaten for last four meals) 3 4. Ability to eat • No problems 0 • Mild vomiting/diarrhoea 1 • Difficulty swallowing/chewing, e.g. mouth sores 2 • Need help with feeding 2 • Severe vomiting/diarrhoea 3 5. Other Problems • None 0 • TB/HIV/AIDS 2 • HIV/AIDS & other infections e.g. TB 3 • Chronically ill 3 **Go to column 2 --→**	If Score is –0-3 "Not currently at nutrition risk" Primary Intervention • Nutrition Education (if applicable) • Healthy Eating e.g. National HIV/AIDS & TB guidelines • Consumption of micronutrient-rich foods • Safe food preparation **4-5 Nutrition "At risk"** • **Start with Primary intervention** (as above) • Monitor weight monthly • Provide Therapeutic Supplement If score >6 "Malnourished" • Therapeutic Supplementation • Reassess monthly **Go to column 3--→**	**The Nutrition Risk Score in column 1 should be repeated at each visit.** • Persons will no longer require Therapeutic Supplementation if: If Score <4 • Reassess score monthly/ at every visit **If Score >4 with:** • No improvement in nutrition score for 6 months • Or if the client is re-scored as <4 **N.B. When the adult is exiting the programme it is very important to follow-up with Primary Intervention & Monthly monitoring [Column 2].**

NB TO GET A NUTRITION RISK SCORE, POINTS FOR EACH QUESTION IN COLUMN 1 NEEDS TO BE ADDED!

Column 1 NUTRITION RISK SCORE	Column 2 ASSESSMENT	Column 3 EXIT CRITERIA
<u>Is the woman malnourished?</u> 1. **Weight Gain during pregnancy** • **< 2, 5 during 1st trimester 3** • **< 0,5 kg/week 2nd & 3rd trimester 3** • **< 12,5 kg wt gain during pregnancy 3** • **MUAC < 23cm 3** 2. **BMI prior to pregnancy/lactating** • **>20 0** • **18-19 1** • **15-17 2** • **<15 3** 3. **Appetite** • **Good (most of plate eaten) 0** • **Poor (½ plate eaten) 2** • **Unable to eat (no food eaten for last four meals) 3** 4. **Ability to eat** • **No problems 0** • **Mild vomiting/diarrhoea 1** • **Difficulty swallowing/chewing, e.g. mouth sores 2** • **Need help with feeding 2** • **Severe vomiting/diarrhoea 3** 5. **Other Problems** • **None 0** • **TB/HIV/AIDS 2** • **HIV/AIDS & other infections e .g. TB 3** GO TO COLUMN 2 →	**If Score is –0-3** "Not currently at nutrition risk" Primary Intervention • Nutrition Education • Healthy Eating guidelines • Consumption of micronutrient-rich foods • Safe food preparation • Good Nutrition during pregnancy • Dangers of alcohol consumption • Dangers of smoking **4-5 Nutrition "At risk"** • **Start with Primary intervention** (as above) • Monitor weight monthly • Provide Therapeutic Supplements **If score >6** "Malnourished" • Therapeutic Supplementation • Reassess monthly GO TO COLUMN 3 --→	**The Nutrition Risk Score in column 1 should be repeated at each visit.** • Persons will no longer require Therapeutic Supplementation after: • First 6 months of lactation • Delivery and will not breastfeed If Score <4 • Reassess score monthly/at every visit **If Score >4 with:** • No improvement in nutrition score for 6 months • Or if the client is re-scored as <4 **N.B. When woman is exiting the programme it is very important to follow-up with Primary Intervention [Column 2].**

NB TO GET A NUTRITION RISK SCORE, POINTS FOR EACH QUESTION IN COLUMN 1 NEEDS TO BE ADDED!

ANNEXURE C:

Products for Therapeutic Supplementation Programme

GROUP 1				
TARGET GROUP	**PRODUCT**	**MONTHLY ISSUE**	**SERVING/DAY**	
CHILDREN BELOW 6 MONTHS	Infant formula	**BREASTMILK ONLY** - 8 tins (only in special circumstances)*	-	This is when a child is < 6 months and is **underweight** i.e. has a high nutrition risk score (greater than 4); mother diagnosed with stage 3 – 4 AIDS or breastfeeding contraindicated due to any other medical reasons.

GROUP 2			
CHILDREN 7 – 12 MONTHS	**Product** Infant formula Infant Cereal	**Monthly issue** 6 tins 2 kg of Infant Cereal	**Serving/day** 1 x 50g Infant Cereal

GROUP 3						
CHILDREN 1 – 14 YRS	Enriched Maize Meal (EMM) Lactose Free Energy Drink RUTF	**1-6 years** 2 X 1kg EMM 3 X 1kg Energy Drink 2 X 500g RUTF	**Serving/ Day** 1 X 50gEMM 2 X 50g Energy Drink 2 x 15g RUTF	**7 – 14 years** 3 X 1kg EMM 2 X 1kg Energy Drink 2 X 500g RUTF	**Serving/day** 2 x50g EMM 1X50g Energy Drink 2 x 15g RUTF
CHILDREN 1 – 14 YEARS WITH TB OR HIV AND AIDS	Enriched Maize Meal (EMM) Lactose Free Energy Drink RUTF	**1-6 years** 2 X 1kg EMM 3 X 1kg Energy Drink 3 X 500g RUTF	**Serving/Day** 1 x 50g EMM 2 x 50g Energy Drink 2 x 15g	**7 – 14 years** 3 X 1kg EMM 2 X 1kg Energy Drink 3 X 500g RUTF	**Serving/Day** 2 x 50g EMM 1 x 50g Energy Drink 2 x15g RTUF

GROUP 4			
PREGNANT AND LACTATING WOMEN	Enriched Maize Meal (EMM) Lactose Free Energy Drink RUTF	3 X 1kg EMM 3 X 1kg Energy Drink 1 X 500g RUTF	**Serving/Day** 2 x 50g EMM 2 X 50g Energy Drink 1 x15g
PREGNANT AND LACTATING WOMEN WITH TB OR HIV AND AIDS	Enriched Maize Meal (EMM) Lactose Free Energy Drink RUTF	3 X 1kg EMM 3 X 1kg Energy Drink 2 X 500g RUTF	**Serving /Day** 2x 50g EMM 2 X 50g Energy Drink 2 x 15g

GROUP 5			
TB OR HIV AND AIDS	Enriched Maize Meal (EMM) Lactose Free Energy Drink RUTF	3 X 1kg EMM 3 X 1kg Energy Drink 2 X 500g RUTF	**Serving/Day** 2 x 50g EMM 2 x 50g Energy Drink 2 x 15g RUTF
CRONICALLY ILL	Enriched Maize Meal Lactose Free Energy Drink RUTF	3 X 1kg EMM 3 X 1kg Energy Drink 1 X 500g RUTF	2 x 50g EMM 2 x 50g Energy Drink 1 x 15g RUTF
PATIENTS ON HIV / TB RX (FOR 6 MONTHS)	Enriched Maize Meal	3 x 1kg EMM	2 x 50g EMM

*** To encourage the promotion, protection and support of breastfeeding, formula milk can only be given out in special circumstances where re-lactation cannot be re-established and where the infant qualifies for food supplementation in**

BMI CALCUALTION

ADULTS

Use the BMI Wheel as part of the Nutrition Risk Screening Tool (NRST - ANNEXURE B) as follows:

1. Measure the person's weight and height
2. Use the BMI wheel to link the weight with the height.
3. Where the weight and height link up, read the Body Mass Index (BMI) on the wheel
4. Record the person's BMI on the health records
5. Use the BMI to score the person's risk in question 2 of the NRST for Adults with TB, HIV/AIDS and other chronic illness and for pregnant and lactating women

EXAMPLE

*2. **BMI***

• > 20	0
• 18-19	1
• 15 –17	2
< 15	3

A. A person has a weight of 50kg and height 1,6m. Turn the height wheel until it meets 50kg. You will then see that his BMI 20 = 0 score
B. A person has a weight of 45kg and a height 1,7m. Turn the height wheel until it meets 45kg. You will then see that his BMI 16 = 2 score
C. A person has a weight of 80kg and a height of 1,65m. Turn the height wheel until it meets 80kg. You will then see that his BMI 28 = OVERWEIGHT (0 score)

NOTE:
BMI cannot be used in pregnant women and in adults with height <1.5 m

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