



health

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NUTRITION

INTERNAL CIRCULAR

Date: 10 March 2020	File No:
To: Head Office Programme Managers District Managers Hospital Managers CHC Managers PHC Operational Managers	Circular No: <i>G36/2020</i>

Subject: Updated Standard Operating Procedures for the Prevention and Management of Malnutrition in KZN 2020 for Implementation

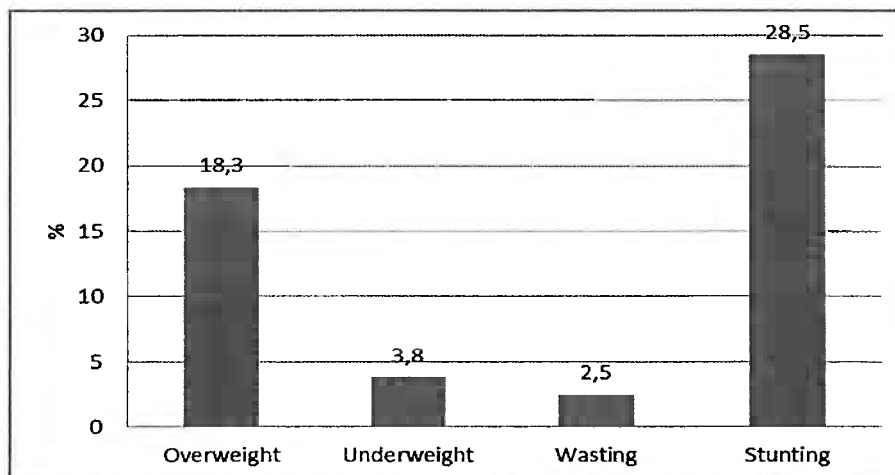
Aim:

The aim of this circular is to communicate the approval of the Standard Operating Procedures for the prevention and management of malnutrition in KZN 2020 for implementation. This document will replace circular G42/2018: KZN Malnutrition Guidelines 2018.

Background:

Over the last decade KZN has focussed on the reduction of severe acute malnutrition (SAM) case fatality rates (CFR) as a provincial priority, and has successfully done so with a reduction of SAM CFR of 11.7% in 2009/2010 to 7.8% in 2018/2019. It is envisaged that with sustained efforts to prevent and manage malnutrition in children under 5, we aim as a province to reach below the WHO international target of 5%. The South African Demographic and Health Survey 2016 (Graph 1), outlines the current nutritional status of children under 5 years of age. Whilst the decrease in acute malnutrition is noted as above, other forms of malnutrition such as stunting (28.5%) and obesity (18.3%) are on the rise. This highlights the need for KZN to include the prevention and management of childhood obesity and stunting as provincial priorities.

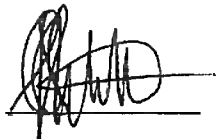
Graph 1: Nutritional Profile of Children in KZN



Fighting Disease, Fighting Poverty, Giving Hope

The SOP on the prevention and management of malnutrition in KZN 2020 targets both children and adults, and addresses both under (wasting, stunting and underweight) and over nutrition (overweight/obesity).

It is recommended that the contents of this circular be brought to the attention of all relevant staff at district and facility level involved in the implementation of child health, maternal health, adolescent and youth friendly services, chronic diseases, HIV/TB & nutrition services.

A handwritten signature in black ink, appearing to be 'SC Tshabalala', written over a horizontal line.

Dr SC Tshabalala
Head: Health



health

Department:
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PROVINCE OF KWAZULU-NATAL

STANDARD OPERATING PROCEDURES ON THE **PREVENTION AND MANAGEMENT** OF **MALNUTRITION** IN KZN **MARCH 2020**



KwaZulu-Natal Department of Health



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INTRODUCTION

This guideline adopts a simplified approach of [Assess, Classify and Treat \(ACT\)](#). In essence every individual receiving health care in the Department should have a nutritional status documented and where required appropriate nutrition therapy provided. The guidelines cover all age categories, and both under and over nutrition. Whilst the guidelines provide recommendations for the management of malnutrition, and in all cases includes those patients diagnosed with TB and HIV, it is worth noting that disease specific cases may present at health facility that require additional assessment and clinical judgement.

The format will be that of a Standard Operating Procedure (SOP), each numbered as per the contents page for ease of reference. The appendixes applicable to each SOP will follow the SOP for quick reference. See template below.

SOP 1: TITLE⁰	The title of the SOP for ease of reference from the contents page. The number indicates the literature from the reference list, used in the development of the SOP.
PURPOSE	The purpose of each SOP will be outlined to define why it exists and the target audience for implementation.
ASSESSMENT	This section will cover how to assess nutritional status in the category that the SOP is relevant to.
CLASSIFICATION	This section will cover how to classify nutritional status in the category that the SOP is relevant to.
TREATMENT / REFERRAL PROCESS	This section will cover how to treat the nutritional diagnosis following classification.
KEY MESSAGES	This section will cover key health education messages that should be covered with the patients or caregivers of patients that are referred to the in the SOP.
RELATED DOCUMENTS	The related documents section is for documents such as, policies, guidelines and other reading material the professional nurse can refer to for more background information in each section.
RELATED INDICATORS	The nutrition indicators applicable for different sections are included for the Nutrition Advisor to understand and monitor them and the Nutrition Advisor monthly monitoring tool is attached at the end of this document.

ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immuno Deficiency Syndrome
ANC	Antenatal care
ART	Anti-Retroviral Therapy
ARV	Antiretroviral drug
BMI	Body Mass Index
BMS	Breast Milk Substitutes
CHW	Community Healthcare Worker
cm	Centimeter(s)
CMVC	Combined vitamin and mineral mix
DARD	Department of Agriculture and Rural Development
DCST	District Clinical Specialist Team
DHIS	District Health Information System
DSD	Department of Social Development
DSR	Department of Sports and Recreation
EDACS	Eating and Drinking Ability Classification System
EMM	Enriched Maize Meal
FBDG	Food Based Dietary Guidelines
GMFCS	Gross motor function classification system
Hb	Haemoglobin
HFA	Length/Height for Age
HFAZ	Length/Height for Age Z score
HIV	Human Immunodeficiency Virus
IMCI	Integrated Management of Childhood Illness
IYCF	Infant and Young Child Feeding
Kcal	Kilocalorie(s)
kJ	Kilojoule(s)
LFED	Lactose Free Energy Drink
M & E	Monitoring and evaluation
MAM	Moderate Acute Malnutrition
MUAC	Mid-Upper Arm Circumference
NACS	Nutrition Assessment, Counseling and Support
NVP	Nevirapine

NACS	Nutrition care, support, and treatment
NSP	Nutrition Supplementation Programme
OTP	Outpatient Therapeutic Programme
OPD	Outpatient department
OSS	Operation Sukhuma Sakhe
PMTCT	Prevention of Mother to Child Transmission
RtHB	Road to Health Booklet
RUTF	Ready to Use Therapeutic Feeds
SAM	Severe Acute Malnutrition
SASSA	South African Social Security Agency
TB	Tuberculosis
VAD	Vitamin A Deficiency
WBOT	Ward-Based Outreach Teams
WFH	Weight for length/height
WHZ	Weight for length/height Z score
WFA	Weight for Age
WFAZ	Weight for Age Z score
WHO	World Health Organization

ASSESSMENT AND CLASSIFICATION OF NUTRITIONAL STATUS

Assessment is a systematic process of obtaining, verifying and interpreting data in order to make decisions about the nature and cause of nutrition-related problems. Proper assessment is critical to make the correct nutritional diagnosis which should precede the counselling and support provided thereafter. It serves as a basis for the other components therefore health workers must be skilled in nutrition assessment as a basis for providing appropriate, nutrition counselling and support. In children under 5, Growth Monitoring and Promotion is the critical process to ensure the optimum health of the child. Nutrition Assessment and Classification should be done for every child under 5 at every visit and recorded in the Road to Health Booklet (RtHB). The ABCDF (below) is the basis of nutrition assessment in every patient that visits a health facility.

Table 1: Summary on Nutrition Assessment per age category

	Anthropometry	Biochemical	Clinical Assessment	Dietary	Food Security
< 29 days	Weight / Length Growth assessment	Assess as is relevant to the medical diagnosis of the patient Laboratory values to interpret for nutritional assessment. Mainly used in hospitalised patients or HIV/TB/Diabetic chronic patients where blood tests are requested as part of routine care and treatment.	Check for oedema	Infant Feeding Assessment	Assess mothers dietary intake, and nutritional status
1 – 6 months	Weight / Length Nutritional Status Classification Growth Assessment		Check for oedema Dermatosis Eye Signs of Vitamin A deficiency	Infant feeding Assessment	Assess mothers dietary intake, and nutritional status
6 – 59 months	Weight / Height / MUAC Nutritional Status Classification Growth Assessment		Check for oedema Dermatosis Eye Signs of Vitamin A deficiency	Complementary feeding assessment in children < 2 years Dietary history from caregiver	Assess food security with caregiver
5 - 19 years	Weight / Height / MUAC / BMI for age Weight loss		Visible Wasting	Dietary history from caregiver & patient	Assess food security with caregiver
>19 years	Weight / Height / MUAC / BMI / Weight Loss Skinfold thickness in obese clients		Visible Wasting	Diet history from patient	Assess food security
Pregnant & Lactating Women	Weight / MUAC BMI if less than 20 weeks pregnant or > 6 weeks lactating Weight Loss		Visible Wasting	Diet history from patient	Assess food security

ANTHROPOMETRY

Weight, Height and MUAC are the standard anthropometric measurements to assess nutritional status. It is thus critical that all PHC facilities are equipped with the requirements to take these measurements and the relevant staff are trained. Further to taking measurements, it is critical to interpret measurements and record a nutritional status for every patient seen. For premature and low birth weight infants, remember to refer to their specific charts up until one year of age.

BIOCHEMICAL

Review results of biochemical (blood and urine) tests as requested specific to the medical diagnosis.

CLINICAL

Clinical Assessment: Grades of Bilateral Pitting Oedema (Grading will affect feed volumes). Other Clinical Symptoms of Wasting / Malnutrition: Emaciated and weak appearance. Thin, dry skin, redundant skin folds caused by loss of subcutaneous fat, Thin, sparse hair that is easily plucked, Dry, atrophic, peeling skin with confluent areas of hyperkeratosis and hyperpigmentation


DIETARY

The diet history taken should be specific to the age of the patient, and should allow the health worker to determine if the nutrient intake is adequate to meet the dietary needs of the patient. This is professionally done by a dietitian for disease specific nutrition support. Complementary feeding guidelines are to be used for nutrition education provided to caregivers of children less than 5 years of age. General nutrition education should be based on the food based dietary guidelines and food guide for children over 5, adolescents and adults.

Assess food access and financial support

Assess	Classify	Manage
<p>Financial Support: Does anyone in the household have regular income?</p>	<p>If yes, then classify as financially supported.</p> <p>If no, then classify as no financial support</p>	<p>If no financial support and food security is placing the patient at risk of developing malnutrition, refer to social worker for DSD / SASSA referral. Patients requiring support from other government departments should be referred to their local OSS War Room. Specific department contact details can be found in Contacts Section of this document.</p>
<p>Food Access:</p> <p>a) Have there been days in the past few weeks when there has not been enough food available to feed the child? For example when you have had to skip meals yourself or for the child or give smaller amounts?</p> <p>b) If yes, then ask, does this happen every week?</p>	<p>If the answer to a and b is yes, then classify as serious food shortage.</p> <p>If the answer to a, is yes and b is no, classify as food shortage.</p>	<p>For children under 18, pregnant and lactating women, and the elderly refer urgently to DSD / SASSA if Social Worker not available. Patients requiring support from other government departments should be referred to their local OSS War Room. Specific department contact details can be found in Contacts Section of this document.</p>

SOP 1: Growth monitoring and promotion in children under 5^{1,2,3}

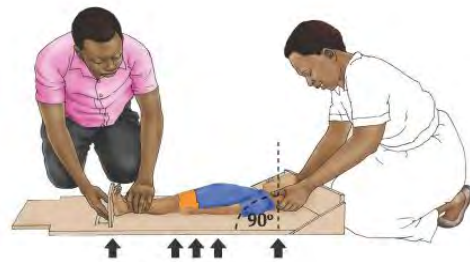
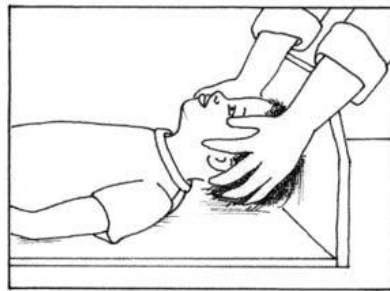
<p>SOP 1</p>	 <p>The Road to Health Booklet (RtHB) launched in 2010 has now being updated to the RtHB 2018 depicted on the left.</p> <p>Every child under 5 in KZN should have either the 2010 booklet or the current booklet which must be updated at every consultation at a health facility.</p>
<p>PURPOSE</p>	<p>To encourage optimal growth of children under 5 years of age, and to facilitate the early identification and prevention of malnutrition.</p>
<p>ASSESSMENT</p>	<p>ASSESS</p> <ul style="list-style-type: none"> • Ask for the child’s RtHB to check for completeness. • If the child under 5 years does not have a RtHB, follow clinic procedures to provide a replacement RtHB. <ul style="list-style-type: none"> • Follow standard procedures as outlined below to take the weight, length/height and MUAC of the child. • Record in the RtHB and plot the graphs. Document nutritional status • Explain to the mother / caregiver the interpretation of the graphs. <p>ASSESS – Taking weight in children under 2</p> <ul style="list-style-type: none"> • Mother / caregiver to remove excess clothing, wet nappies from child to obtain an accurate weight • Use a paediatric scale. • If not possible, do tarred weighing (weighing mother & child together). • Explain the weighing procedure to the mother. • The mother will remove her shoes and step on the scale to be weighed alone first. • The mother’s weight appears on the display. Mother to remain standing on the scale. • Re-set the reading to zero. • Then give the mother her child to hold. • The child’s weight will appear on the scale. • Record the child’s weight. <p>ASSESS – Taking weight in children over 2</p> <ul style="list-style-type: none"> • Mother / caregiver to remove shoes, excess clothing from child to obtain an accurate weight • The child to step on the scale alone and stand very still. • The child must stand in the middle of the scale, feet slightly apart and remain still until the weight appears on the display. • Record the child’s weight in the RtHB for children 2 – 5 years. Record the weight in clinic card for 2 – 18 years. • Child over 2 should remove heavy clothing and shoes before standing on scale. Encourage the client to wear similar clothes to all visits. Remember to empty pockets. Do not allow the child to play with toys or cellphones/gadgets during the weighing procedure. <p>LENGTH / HEIGHT IN CHILDREN UNDER 5</p> <p>The RtHB recommends the taking of length / height every 6 months in children under 5. However, due to the documented high incidence of stunting and childhood obesity in KZN, this guideline and the national IMCI Guideline recommends that length / height is taken at every visit to promote early identification of acute malnutrition, childhood</p>

overweight and stunting.

Length and Height

Child is less than 2 years old, measure the child's **length** lying down (recumbent) using a length board /mat which should be placed on a flat, stable surface such as a table.

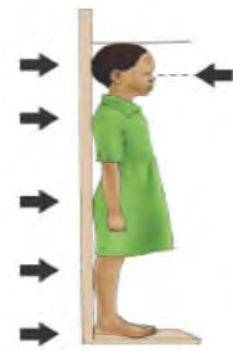
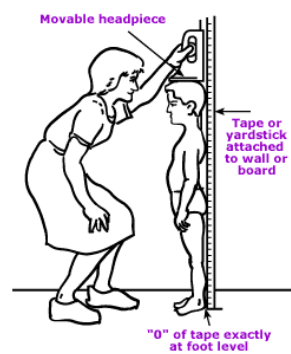
- Place the length board on a table or the ground.
- Remove the child's footwear and any head covering.
- Explain to the mother that she will need to assist with placing the baby on the length board and then help to hold the baby's head in place while you take the measurement.
- Place the child on his / her back in the middle of the board with arms at the sides and feet at right angles to the board. The heels, knees, buttocks, back of the head and shoulders should touch the board. Gently hold the child's head so eyes point straight up. Gently bring the top of the head to the fixed end of the board.
- Gently hold the child's ankles or knees. With the other hand, slide the moveable foot piece until both heels touch it.
- Immediately remove the child's feet from the foot piece to prevent kicking, holding the footboard securely with the other hand.
- Read the measurement aloud to the nearest 0.1 cm.
- Ask another health worker to repeat the measurement for verification and record.



Measuring standing height

If the child is aged 2 years or older, measure standing **height** unless the child is unable to stand. Use a height board mounted at a right angle between a level floor and against a straight, vertical surface such as a wall or pillar.

- Use a height board or fasten a non-stretchable tape measure securely to a wall. Place the height board vertically on a flat surface. Remove the client's shoes and headwear.
- Make sure the shoulder blades, buttocks and heels touch the vertical surface of the board. The feet should be flat on the floor, close together and touching the back of the board. The legs and back should be straight, with arms at the sides. The shoulders should be relaxed and touching the board. The head need not touch the board.
- Ask the client to stand straight and tall and look straight ahead.
- Gently hold the client's head to look straight ahead.
- Bring the moveable head piece to rest firmly on the top of the client's head.
- Ask another health worker or mother to hold the client's feet.
- Read the measurement aloud to the nearest 0.1 cm.



- If necessary, push gently on the tummy to help the child stand to full height.
- Still keeping the head in position use your other hand to pull down the headboard to rest firmly on top of the head and compress the hair.
- Read the measurement and record the child's height in centimetres Remember: If the child whose height you measured is less than 2 years old, add 0.7 cm to the height measure

CHECK FOR OEDEMA - Clinical Assessment: Grades of Bilateral Pitting Oedema (Grading will affect feed volumes)

Grade	Definition	Indication of severe acute malnutrition
Absent or 0	No bilateral pitting oedema	
Grade +	Mild: both feet/ankles	
Grade ++	Moderate: both feet, plus lower hands or lower arms	
Grade +++	Severe: generalized bilateral pitting oedema, including both feet, legs, arms and face	

	<ul style="list-style-type: none"> Other Clinical Symptoms of Wasting / Undernutrition: Emaciated and weak appearance, thin, dry skin, redundant skin folds caused by loss of subcutaneous fat, thin, sparse hair that is easily plucked, Dry, atrophic, peeling skin with confluent areas of hyperkeratosis and hyperpigmentation.
	<p>For children 0 – 5 years: Plot the Weight-for-age graph, Weight-for-height graph and Height-for-age graph. Do a Growth Assessment on the <u>Weight-for-age Graph</u>, by reviewing the growth trend over the last 3 months as outlined below.</p> <p>Do a nutritional status classification on all 3 graphs as outlined below.</p>
<p>CLASSIFICATION</p>	<p>CLASSIFICATION by RtHB Charts</p> <p>Weight-for-age chart:</p> <ul style="list-style-type: none"> below -2 line means a child is <i>underweight</i> below -3 line means child is <i>severely underweight</i> <p>Length/height-for-age:</p> <ul style="list-style-type: none"> below -2 line means a child is <i>stunted</i>, below -3 line means child is <i>severely stunted</i> <p>Weight for length / height:</p> <ul style="list-style-type: none"> between -2 & -3 line means a child has <i>moderate acute malnutrition</i> below -3 line means child has <i>severe acute malnutrition</i> above +2 line means a child is <i>overweight</i> above +3 line means child is <i>obese</i> <p>CLASSIFICATION by MUAC in children 6 – 59 months.</p> <p>MUAC ≤ 11.5 : <i>Severe Acute Malnutrition</i> MUAC 11.6 – 12.5 : <i>Moderate Acute Malnutrition</i> MUAC > 12.5 : <i>Not acutely malnourished</i></p>

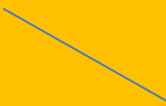



GROWTH ASSESSMENT

For all children, a growth assessment needs to be conducted to determine if the child may be at risk of developing acute malnutrition (NAM at risk). The growth assessment requires that a minimum of 3 consecutive visits be assessed, including the current visit. This growth assessment is done on the weight for age chart. The weight for age growth chart should always be interpreted following the weight for height assessment and height for age assessment.

Why? A child who is overweight / obese may not be growing well due to excess fat accumulation however does not require nutrition supplements as this will result in further weight gain, and thus the caregiver needs to be counselled differently than a child who is growing well.

A child who is not acutely malnourished but is stunting / stunted and found to be growth faltering (NAM at risk) needs to be monitored very carefully and supplemented on a month to month basis to ensure the child does not become overweight / obese.

HOW TO DO A GROWTH ASSESSMENT

Weight for age Growth Curve	Assess & Classify
	Losing weight NAM at risk (Not growing well)
	No weight gain (stopped growing) NAM at risk (Not growing well)
	Poor weight gain (gaining weight inadequately) NAM – at risk (Not growing well)
	Gaining weight well (adequately) NAM – growing well

*NAM (Not acutely malnourished) – weight/length is normal

MANAGEMENT

- For children identified with acute malnutrition and/or NAM at risk (refer to the SOP’s 2 – 5).
- For children identified with overweight / obesity, refer to SOP 12
- For children who are growing well, provide the key messages below.

KEY MESSAGES	<ul style="list-style-type: none"> • Mother / caregiver to always bring the RtHB when visiting a health facility. • <i>Weighing schedule:</i> In children, 0-2 years, they should be brought to the health facility every month; For children > 2 years they should be brought to the health facility every 3 months; • For children < 6 months, refer to SOP 3: Acute malnutrition in Infants < 6 months old • Refer to the nutrition messages in the RtHB and counsel the mother using the booklet so she is able to refer to it at home as well. • Encourage mothers / caregivers to request that the growth of the child is explained to them.
RELATED DOCUMENTS	<p>Mother and Child Booklet. Complementary Feeding Guidelines.</p>
RELATED DHIS INDICATORS	<p>Child under 5 weighing rate (PHC/OPD). Child under 2 underweight for age incidence (PHC/OPD). Child under 5 moderate acute malnutrition (PHC/OPD) Child under 5 severe acute malnutrition (PHC/OPD)</p>

SOP 2: Outpatient management of MAM & NAM at Risk in Children 6 – 59 months ^{11,14,20,21}

PURPOSE	To appropriately assess and classify, and manage malnutrition in children 6 – 59 months. To prevent the development of severe acute malnutrition.				
ASSESSMENT	Refer to SOP 1: Growth Monitoring and Promotion In addition to WHZ plotting and assessment and HAZ plotting and assessment, a detailed growth assessment from the weight for age chart must be done. Take diet and medical history from mother / caregiver to identify reasons for weight loss / poor weight gain or excessive weight gain.				
CLASSIFICATION	Classify nutritional status of every child 1 – 59 months as described in SOP 1.				
TREATMENT		Infant Cereal (IC) Daily	Ready to use Therapeutic Food (RUTF) Daily	Monthly	
	Age 6-11 months: Moderate Acute Malnutrition				
	4.0 – 4.9kg 360kcal / day	25g x 2 (2 servings) 200kcal	2tsp(30g) 160kcal		30 sachets IC 2 x 450g RUTF
	5.0 – 6.9kg 440kcal / day	25g x 2 (2 servings) 200kcal	3tsp(45g) 240kcal		30 sachets IC 3 x 450g RUTF
	7.0 – 9.9kg 660kcal / day	50g x 2 (2 servings) 420kcal	3tsp(45g) 240kcal		60 sachets IC 3 x 450g RUTF
	Age 12 – 59 Months: Moderate Acute Malnutrition				
		Enriched Maize Meal (EMM) Daily	Ready to use Therapeutic Food (RUTF) Daily	Lactose Free Energy Drink (LFED) Daily	Monthly
	5.0 – 6.9kg 500kcal / day	50g (1 serving) 200kcal	1tsp (15g) 80kcal	50g (1 serving) 220kcal	2 x 1kg pkt EMM 1 x 450g RUTF 2 x 1kg pkt LFED
	7.0 – 9.9kg 580kcal/ Day	50g (1 serving) 200kcal	2tsp (30g) 160kcal	50g (1 serving) 220kcal	4 x 1kg pkt EMM 2 x 450g RUTF 2 X 1kg pkt LFED
	10.0 – 15.5kg 940kcal / day	100g (2 serving) 400kcal	4tsp (60g) 320kcal	50g (1 serving) 220kcal	3 x 1kg pkt EMM 4 x 450g RUTF 2 x 1kg LFED

Outpatient Management of Children 6 – 59 Months (Not Acutely Malnourished But at Risk)

Age 6 – 59 Months: Not acutely malnourished but at risk (Not growing well)

A deficit in the home diet of 50kcal is assumed. Supplement to provide additional 50kcal / kg / BW per day to prevent further growth faltering. Recommendation would be to use infant cereal independently.

Age 6-11 months: Not acutely malnourished but at risk-Fortified Infant Cereal and RUTF

	Infant Cereal (IC) Daily	Ready to use therapeutic food (RUTF) Daily	Monthly
4.0 – 6.9kg 280kcal / day	50g (1 serving) 200kcal	1 tsp (15g) 80kcal	30 sachets IC 1 x 450g RUTF
7.0 – 9.9kg 440kcal / day	50g (1 serving) 200kcal	3 tsp (45g) 240kcal	30 sachets IC 3 x 450g RUTF

Age 12 – 59 Months: Not acutely malnourished but at risk – Enriched Maize Meal (EMM), Lactose Free Energy Drink (LFED) and Ready to use therapeutic Food (RUTF)

	EMM Daily	RUTF Daily	LFED Daily	Monthly
5.0 – 6.9kg 280kcal / day	50g (1 serving) 200kcal	1tsp (15g) 80kcal	None	2 x 1kg pkt EMM 1 x 450g RUTF
7.0 – 9.9kg 360kcal/ Day	50g (1 serving) 200kcal	2 tsp (30g) 160kcal	None	2 x 1kg pkt EMM 2 x 450g RUTF
10.0 – 14.9kg 580kcal / day	50g (1 serving) 200kcal	2tsp (30g) 160kcal	50g (1 serving) 220kcal	2 x 1kg pkt EMM 2 x 450g RUTF 2 x 1kg pkt LFED
15.0 – 19.9kg 860kcal / day	100g (2 servings) 400kcal	3 tsp (45g) 240kcal	50g (1 serving) 220kcal	3 x 1kg pkt EMM 3 x 450g RUTF 2 x 1kg LFED

KEY MESSAGES	<p>The caregiver must bring the child monthly for follow up visits. Nutrition supplements must be provided to the child only as directed by the health worker and not shared amongst the family.</p> <p>Educate the mother on the rationale behind therapeutic supplementation and that this is not a long term intervention.</p> <p>Explain that RUTF is a therapeutic feed specifically developed for children with malnutrition. It does not require water for preparation; however the child should drink water after consuming RUTF. RUTF can be added to other foods, e.g. spread on bread, maize meal porridge or eaten alone.</p> <p>For children > 6 months, wash the child’s hands and face before feeding.</p> <p>Counsel mother on identifying danger signs as in RtHB (Vomiting, unable to breastfeed, diarrhoea with sunken eyes or sunken fontanelle, diarrhoea with blood, chest in drawing, child < 2 years not feeding and has fever, child lethargic or unconscious, cough and breathing rate more than 50 breaths per minute).</p> <p>Counsel the mother on preparation of ORS at home and how to treat diarrhoea to prevent dehydration.</p> <p>Seek information to identify poor feeding practices or social circumstance that may have resulted in growth faltering. Refer to social worker if further social support is required.</p> <p>Refer to complementary feeding guidelines as indicated in the RtHB.</p> <p>Ensure that immunization, vitamin A prophylaxis schedule and deworming is up to date</p>
RELATED DOCUMENTS	<p>IMCI Guidelines.</p> <p>Nutrition Register – children who do not return for follow up must be directed to a CHW for a home visit using Appendix 25 & 26 .</p>
RELATED DHIS INDICATORS	<p>Child under 5 not acutely malnourished but at risk.</p> <p>Child under 5 food supplementation new.</p> <p>Malnourished children under 5 receiving food supplements.</p>

SOP 3: Acute malnutrition in children 1 - 6 months of age^{5,11,27}

PURPOSE	To ensure that infants less than 6 months are accurately assessed and classified for malnutrition, and treated accordingly.
ASSESSMENT	Take the weight and length of all children less than 6 months of age as per SOP 1. Plot all charts in the Road to Health Booklet, and do a growth assessment. Assess for oedema and clinical signs for malnutrition as per SOP 1. Assess mother of the child as per SOP 4 below. Feeding assessment and classification as per below.
CLASSIFICATION	<p>WHZ < -3 or oedema = Severe Acute Malnutrition</p> <p>WHZ between -2 and -3 and no clinical complication, alert and well, No IMCI danger signs = Moderate Acute Malnutrition.</p> <p>If any of the below are identified, the child may have a severe feeding difficulty and may require referral for inpatient admission to prevent further deterioration in nutritional status.</p> <ul style="list-style-type: none"> - Structural abnormalities (e.g. cleft lip/palate, or more complex conditions affecting the face, jaw and mouth) - Abnormalities of tone, posture and movement interfering with breastfeeding. - Infant’s body stiff / hard to contain or move - Excessive jaw opening or jaw clenching - Not willing / able to suckle at the breast or cup - Coughing and tearing (signs of unsafe swallowing while breastfeeding) <p>If the child is not well attached to the breast, not suckling effectively or less than 8 breastfeeds in a day or receives other foods / drinks. Indicative of a moderate feeding difficulty.</p> <p><u>Non – Breastfeeding Infant Assessment:</u></p> <p><i>If any of the following, refer to SOP for supporting the non – breastfeeding mother. Follow up in 1 week, if no progress, refer to in patient care.</i></p> <ul style="list-style-type: none"> • Inappropriate infant formula or feed being used. • Consuming less than the prescribed amount of infant formula per 24 hours. Refusing some feeds. Receives other food / drinks in addition to BMS.

TREATMENT	<p>SAM: Refer to SOP 5 Inpatient management of the child with acute malnutrition.</p> <p>MAM / NAM at Risk: Detailed feeding assessment to determine underlying cause of acute malnutrition. Follow up in 1 week. If non – breastfed, Refer to Appendix 20 for supporting the non – breastfed infant. Follow up in 1 week, if no progress, refer to in patient care.</p> <p>Severe Feeding Difficulty: refer for multi – disciplinary inpatient assessment & classification.</p> <p>Moderate Feeding Difficulty: First line counselling of mother on breastfeeding (Appendix 19 on Lactation Management and Support). Follow up in one week for progress. If no progress, refer to in – patient care.</p>
KEY MESSAGES	<ul style="list-style-type: none"> • Treatment of the breastfed infant with F75 and diluted F100 during admission is not mixed feeding, and should be referred to as therapeutic management of the child. The mother needs to be consistently encouraged to feed on demand to keep up her supply so she is able to successfully rehabilitate the baby in preparation for discharge on breastmilk. • The child managed on infant formula during rehabilitation feeding, where re-lactation was impossible or unsuccessful should be discharged on infant formula via the dietitian, and followed up monthly.
RELATED DOCUMENTS	<ul style="list-style-type: none"> • Appendix 19 - SOP on lactation management and support • Appendix 20 - SOP on feeding the non – breastfed infant • Resources: WHO guidelines on the safe preparation of infant formula
RELATED DHIS INDICATORS	<p>Child under 5 severe acute malnutrition case fatality rate</p> <p>Child under 5 severe acute malnutrition incidence</p>

SOP 4: Mothers of children < 6 months old with acute malnutrition²⁶

PURPOSE	To ensure that mothers of children < 6 months of age are well cared for and if required receive the necessary nutrition support.
ASSESSMENT	<p>Check for:-</p> <p>Nutritional status: MUAC</p> <p>Anaemia: Laboratory confirmation</p> <p>Tested for HIV & TB: Laboratory confirmation</p> <p>Assess for food security, Child support grant status of child. Refer all cases of SAM admissions to the social worker for complete social assessment.</p> <p><u>Check if the mother has any of the concerns below:-</u></p> <ul style="list-style-type: none"> - The need to re-lactate following interruption of exclusive breastfeeding - Needs to express breastmilk and cup feed - Breast conditions: Engorgement, sore – cracked nipples, mastitis, flat, inverted, long or large nipples, nipple pain, thrush - Perception of not having enough breastmilk. - Other concerns: mother lacks confidence; concerns about her diet; working away from her infant. <p><u>Psychologist and social worker referral if mother is:-</u></p> <ul style="list-style-type: none"> -Traumatised, in emotional crisis or rejecting infant -Depressed (feels alone/no social support, unsatisfied, has little decision making) -Domestic violence /abuse at home -Teenage mother with little / no social support
CLASSIFICATION	<p>MUAC < 21cm – Severe Acute Malnutrition</p> <p>MUAC 21 – 23cm – Moderate Acute Malnutrition</p> <p>MUAC >23cm Not acutely malnourished.</p>
TREATMENT / REFERRAL	<p>As per SOP 10: Children over 5, adults and adolescents with acute malnutrition</p> <p>Refer to social worker and psychologist if required from assessment.</p>
KEY MESSAGES	Counsel the mother on healthy eating during lactation as per the Mother and Child Booklet.
RELATED DOCUMENTS	Mother and child booklet
RELATED DHIS INDICATORS	None

3.1 STABILISATION PHASE

Step 1: Treat / Prevent Hypoglycaemia and Initiate “Stabilizing” Feeding

Hypoglycaemia and hypothermia usually occur together and is a sign of infection. Check for hypoglycaemia whenever hypothermia occurs. Frequent feeding is important in preventing both conditions. Coexisting hypoglycaemia and pyrexia is also an indicator of the child needing urgent medical attention

Treatment

Begin feeding immediately and do not miss feeds. Feed using a cup or spoon. Give a “stabilizing feed” in a volume of 130 ml/kg/day divided into 3 hourly feeds, i.e. 16ml/kg 8 times daily. This feed will provide approximately 100kcal/kg/day of energy and between 1 - 1.5g/kg/day protein. If energy supplied is less than 100kcal/kg/day the child’s body will further breakdown tissue and continue to deteriorate

- If the child has gross oedema (+++), reduce the volume to 100ml/kg/day
- If danger signs, hypothermia or hypoglycaemia are present, feed a volume of 130 ml/kg/day **but** divided into 2 hourly feeds, i.e. 11 ml/kg 12 times daily, until these resolve.
- If the child is breastfed, encourage continued breastfeeding, but stabilizing feed is priority. Give stabilizing feed and breastfeed in between.
- Children below 6 months should be offered F75 as therapeutic feed if full breastfeeding is not established.
- If feeds are refused/not finished (child should take at least 80% of each feed) give the feeds via nasogastric (NG) tube. Prioritize oral feeding and only feed the leftover feed via NG tube. Check placement of tube before commencing feeding.
- Monitor 24 hour intake: record feed taken, leftover and estimated vomited. If feed is vomited offer the same amount to the child immediately. Monitor intake and output (i.e. vomiting, diarrhea, urine output) in Feed Chart /Fluid Balance sheets.
- Weigh children at the same time and plot the weight daily. Ensure scales are calibrated.
- The only exceptions to feeding immediately are:
 - While shock is being corrected
 - Surgical abdominal emergency / Ileus

Detect and Treat low blood sugar

- Test blood glucose level 3 hourly, you can stop 3hrly testing and resume routine testing when it is normal and stable for 24hours provided the child is not severely ill.
- If the blood glucose <3 mmol/L in asymptomatic child give:
 - “stabilizing feed” immediately, **or**
 - sugar solution, oral, 10 ml/kg **or**
 - 50 ml bolus of 10% dextrose

- Check the Blood Glucose after 30 min. If the blood glucose is ≥ 3 mmol/l, continue normal feeds, monitor blood glucose see it remains above 3 mmol/L.
- If symptomatic or unresponsive hypoglycaemia give:
 - Dextrose 10%, IV, 5 mL/kg over 2 – 3 minutes.
 - Re Check the Blood Glucose after 30 min, if normal, continue feeds, monitor blood glucose see it remains above 3 mmol/L.

By keeping the child warm, feeding early and regularly, and treating infections, a low blood sugar can be avoided in most children with SAM.

If a child becomes unconscious and you are unable to check blood glucose, treat as low blood sugar while finding a way to confirm if the blood glucose is normal and exclude other causes such as meningitis.

Step 2. Treat and Prevent Hypothermia

Treat immediately if the temperature is below 36.5°C

- Begin feeding straight away (or start rehydration if diarrhoea with dehydration)
- Facilitate active re-warming. This involves:-
 - Putting the child on the mother's bare chest (skin-skin contact) i.e. wrap mother and child in blankets – minimize clothing between the mother and child to ensure heat transfer to the child.
 - Place a heater nearby.
 - If no mother is present, or if mother-child heating is not possible, clothe and wrap the child, including the head with warmed blanket.
 - If warmed water bottles are used due to failure of all other options **do not apply direct heat to the skin** as they may burn the child – place warmed water bottles outside of the blankets wrapping the child.

Monitor

- During reheating check temperature every 30minutes until stabilized $> 36.5^{\circ}\text{C}$ as children with SAM are also not able to prevent themselves becoming overheated (hyperthermic) which is also dangerous.
- Record temperature, pulse and respiration rates every 4 hours once established.
- To keep a child warm ensure the following
- Keep the child, and especially the head, covered at all times especially at night.
- Keep the child and clothing dry and change wet napkins regularly.
- Avoid exposure during examination or bathing
- Care for child in a warm area,(i.e. 25–30°C), away from window and avoid drafts

- Ensure regular correct feeding

Note: If a low reading thermometer is unavailable and the child’s temperature is too low to register on an ordinary thermometer, assume the child has hypothermia.

Step 3. Prevent and treat dehydration

These children have poor cardiac function and are easily volume overloaded – Avoid intravenous (IV) infusions

A child with SAM and diarrhoea is at serious risk as they have poor ability to respond to both shock and to fluid overload.

The most critical factor in managing a child with dehydration or shock is regular observation of the response to each therapeutic intervention.

Note: after treatment of shock reassess immediately, children on rehydration need 4 hourly assessments.

Anti-diarrhoeal medications are not used, i.e. kaolin and pectin, atropine and diphenoxylate, loperamide, antiemetics or pre/probiotics in the management of acute diarrhoea.

Determine if the child is in shock using table 3 and treat according to table 4.

Table 3: Recognizing shock and dehydration

Recognizing shock and dehydration	
Shock is recognized by one or more of the following:	
Compensated Shock	Delayed capillary refilling time (> 3 seconds) Increased pulse rate Cool peripheries
Late (Preterminal)	Decreased level of consciousness Decreased blood pressure Decreased pulse volume
Dehydration is assessed after shock is dealt with	
Severe Dehydration	Some Dehydration
Eyes Sunken	Eyes Sunken
Very slow skin pinch/turgor (≥2sec)	Slow skin pinch/turgor (< 2 sec)
Drinking poorly	Drinks eagerly
	Irritable/restless
Other indicators of dehydration may be sought but are often less useful or less easily assessed e.g.: depressed fontanelle, absent tears, decreased passage of urine	

Table 4: Treating child in shock and the child not in shock for dehydration

Patient in shock	Patient not in shock
<p>Give oxygen and treat immediately with normal saline (sodium chloride) 0.9%, IV or Ringers lactate 10ml / kg given as a bolus over 20 minutes and monitor for a response.</p> <ul style="list-style-type: none"> ● Reassess for presence of shock or circulatory overload. If shock has resolved proceed to manage dehydration. Monitor every 10 minutes for signs of circulation overload. ● If signs of circulation overload are present – Increasing liver span, rising pulse and respiratory rate, gallop rhythm, basal crepitations – stop infusion, manage appropriately. Consider need for referral for higher level of care and inotropes. ● If shock has not improved or not resolved:- Repeat the fluid bolus while shock remains (providing evidence that circulatory overload is not present) until improvement is achieved, up to 3 times ● After the 4 x10ml/kg boluses, i.e. total of 40 ml/kg has been given with inadequate response, a further bolus can be started and the patient should be moved to intensive care unit (ICU) for central venous pressure (CVP) monitoring and inotropic support. ● Once shock has been treated and the child is stable proceed to the management of dehydration. 	<p>Check for Dehydration</p> <p><i>If no dehydration present</i></p> <p>Show the caregiver how to give ORS with a cup and spoon using frequent small sips.</p> <p>Encourage caregiver to give 10 ml/kg after each diarrhoeal stool until diarrhoea stops.</p> <p>Continue to give normal feeds and reassess for dehydration frequently.</p> <p><i>If dehydration (severe or some dehydration) is present</i></p> <ul style="list-style-type: none"> ● Give ORS for malnourished children (5ml / kg / every 15 minutes for 4 hours). Show the caregiver how to give ORS with a cup and spoon. ● If child vomits wait 10 minutes and then continue to offer more slowly. ● Encourage caregiver to continue feeding the child, especially breastfeeding. ● Review hydration after 4 hours: general condition, capillary filling time, level of consciousness, skin turgor, sunken eyes, respiratory rate, abdomen, if passing urine and number/quality of stools ● Note: If shock redevelops - treat as above for shock. <ul style="list-style-type: none"> ● If dehydration is improving - continue ● If there is no dehydration - prevent by offering 10ml/kg ORS orally after each loose stool ● If dehydration is not improving - consider IV fluids with great care

Only if child fails the above oral treatment for dehydration then:

- Treat with IV Darrows half strength with dextrose 5% starting at a rate according to weight.

Table 5: IV fluid rates according to weight

2-10 kg	10 ml/kg/hr
11-20 kg	8 ml/kg/hr
21-50 kg	6 ml/kg/hr
Fluid	½ Darrows / 5% DW
In addition to ORAL FEEDS at normal feed volumes and times	

If a child has very severe anaemia (<4g/dL) or severe anaemia (Hb 4-6g/dL) with respiratory distress:-

- Give packed cells 5ml/kg IV over 3 hours.
- Give furosemide 1mg/kg IV at the start and end of the transfusion.
- Keep a close eye for signs of fluid overload: further tachycardia, gallop rhythm, breathing even faster, puffy eyelids, enlarging liver size.

Encourage oral feeds to begin once level of consciousness is normal and child is not in severe distress.

Table 6: Response to assessment of child on IV treatment

Finding on assessment	Response
Shock	Treat for shock
No improvement or more dehydrated	Increase drip rate by 25%
Improving clinical condition	Continue current drip rate
No visible dehydration	Decrease drip rate by 30% until low enough to change to oral prevention
Repeat cycle 4 hourly until drip rate is low enough with no visible dehydration.	

Step 4: Correct Electrolyte Imbalance

All severely malnourished children have excess body sodium even though plasma sodium may be low (giving high sodium loads can kill). Deficiencies of potassium and magnesium are also present and may take at least 2 weeks to correct. Oedema is partly due to these imbalances. Do not treat oedema with a diuretic.

Electrolytes

- If the child is receiving RTU F75 or F100, or if the feed prepared contains CMVC, then additional potassium and magnesium is not required.
- If the child's feed is made without CMVC mix then provide potassium chloride solution, 25 - 50mg / kg / dose, oral 8 hourly until oedema subsides. If < 10kg: 250mg. If > 10kg: 500mg

Trace Element Mix Oral, daily:

If < 10kg: 2.5ml

If > 10kg: 5ml

STEP 5: Treat / Prevent Infection

In SAM, the usual signs of infection such as fever are often absent and infections are often hidden. Early treatment of bacterial infections with effective antimicrobials improves the nutritional response to feeding, prevents septic shock and reduces mortality. Antibiotic use should be guided by local microbiological flora. The paediatric EML recommends:-

START ANTIBIOTICS ON THE FIRST DAY AT ADMISSION.

If the child has no danger signs, is alert and feeding well:

- Amoxicillin, oral, 30mg/kg/dose 8 hourly for 5 days.

All other children:

- Ampicillin, IV/IM, 50mg/kg 6 hourly for 7 days. Avoid IV infusions if possible. Use heparin lock to avoid fluid overload because of poor cardiac reserves.

PLUS

- Gentamicin, IV, 6mg/kg once daily for 7 days.

As soon as there is a response and patient can tolerate oral medication change ampicillin to amoxicillin and continue with gentamicin:

- Amoxicillin, oral 30mg/kg/dose 8 hourly for a further 5 days. PLUS Gentamicin, IV/IM, 6mg/kg once daily for 7 days.

1. If the child is severely ill or fails to improve after 48 hours:

- Third generation cephalosporin e.g. Ceftriaxone, IV/IM, 50mg/kg/dose once daily.
- If meningitis is suspected: 80mg / kg/ dose

*****DO NOT USE CEFTRIAXONE IN NEONATES**

2. If child does not improve after 5 days, or deteriorates, refer to higher level of care.

INTESTINAL WORM INFESTATION

Treat after the stabilization phase:

Children 1 – 2 years of age:

Mebendazole, oral 100mg 12 hourly for 3 days.

Children > 2 years:

Mebendazole, oral 500mg as a single dose immediately.

HIV & TB

Actively investigate for HIV and TB as soon as possible.

TB is difficult to diagnose and confirm. Ask about contacts, symptoms. Do Tuberculin Skin Test (TST) and chest x ray. If TST negative, repeat just before discharge. If TB is clinically likely, pre- sumptive TB treatment is often reasonable, but once begun should be completed.

Counsel mother / caregiver and test for HIV. Once the child enters the rehabilitative phase, commence ART as per provincial guidelines.

HIV infected children with SAM should be closely monitored in the first 6-8 weeks of initiation on ART.

Step 6: Correct Micronutrient Deficiencies

This step aims to correct micronutrient deficiencies.

Micronutrients

Vitamin A

- Give single age specific high dose Vitamin A capsule (as per the table below) if the child has measles, persistent diarrhoea and / or clinical eye signs of Vitamin A deficiency (xerophthalmia). Record the dose given in the RtHB.

Complication	Age	Day 1	Day 2
Persistent Diarrhoea	0 – 5 months	50 000IU	
	6 – 11 months	100 000IU	
	12 – 59 months	200 000IU	
Measles	0 – 5 months	50 000IU	50 000IU
	6 – 11 months	100 000IU	100 000IU
	12 – 59 months	200 000IU	200 000IU
Xerophthalmia	0 – 5 months	50 000IU	50 000IU
	6 – 11 months	100 000IU	100 000IU
	12 – 59 months	200 000IU	200 000IU

- For children without the above complications and who are receiving F75, F100 or RUTF, no high dose Vitamin A supplementation is required.

Folic Acid

Only give stat dose of 5mg on day 1. Do not give daily dose of folic acid and MVT if CMV mix is given or if a child is on F75, F100 or RUTF.

Iron

- Only give Iron after the stabilization phase is completed. Iron supplementation is only given once the child is gaining weight and oedema has resolved – usually after 7 days. Give, 2mg/kg elemental iron per dose 8 hourly with meals when the child is on F100. Stop iron when child is taking full prescribed amount of RUTF.
- In children that are HIV positive, check iron status using Ferritin test before supplementing.

Zinc

- Children with SAM who have diarrhoea should receive zinc in the same way as children who are not SAM. However, children with SAM receiving F75, F100 (RTU or prepared with CMVC) or RUTF should not be given additional zinc supplements even if they have diarrhoea, as these therapeutic foods contain the recommended amounts of zinc for diarrhoea.

Step 7: Start Cautious Feeding

In the stabilisation phase a cautious approach is required because of the child's fragile physiological state and reduced homeostatic capacity. Feeding should be started as soon as possible after admission and should be designed to provide just sufficient energy and protein to maintain basic physiological processes. The essential features of feeding in the stabilisation phase are:-

- Small, frequent feeds of low osmolarity and low lactose
- Oral or nasogastric feeds (never parenteral)
- Energy: 100kcal / kg / day
- Protein: 1.0 - 1.5g/kg/day
- Feed Volume: 130ml / kg / day fluid when there is no oedema or mild (+, ++oedema)
- (100ml /kg /day) if the child has gross oedema (+++)
- Continued breastfeeding for breastfed children.

The suggested F75 starter feeding schedules are designed to meet this need. Give from a cup. Very weak children may be fed from a spoon, dropper or syringe. Volume and feeding frequency is gradually increased.

Table 7: F75 Starter feeding schedule

Days	Frequency	Vol / kg / Feed	Vol / kg / day
1 – 2	2 hourly	11ml	130ml
3 – 5	3 hourly	16ml	130ml
6 – 7	4 hourly	22ml	130ml

- For children with good appetite and no oedema, this schedule can be completed in 2 – 3 days.
- Appendix 9 shows the volume / feed already calculated according to body weight. Appendix 10 shows the feed volumes for children with severe oedema.
- Use the admission weight to calculate how much to give, even if the child loses or gains weight in this phase.
- If after allowing for any vomiting, intake does not reach (105ml/kg/day) despite frequent feeds, coaxing and re-offering; give the remaining feed by NG tube

MONITOR AND NOTE:-

- Amounts offered and left over
- Vomiting
- Frequency of watery stool
- Daily body weight

During the stabilisation phase, diarrhoea should gradually diminish and oedematous children should lose weight.

HIV-infected children with SAM in whom persistent diarrhoea does not resolve with standard management should be investigated to exclude carbohydrate intolerance and infective causes, which may require different management, such as modification of fluid and feed intake, or antibiotics. The modification of feeds should be clearly documented in the medical notes.

Assess ward if infection control measures are in place, particularly on handwashing and sterilising of feeding utensils and equipment. Ensure that the mother is not feeding other foods / drinks.

Once the child’s appetite returns to normal, usually within a week and/or oedema is lost or reduced, the wasted tissues need to be rebuilt.

- Change to a “rehabilitation / rebuilding / catch-up feed⁷” known as F100 or Diluted F100 (<6 months).

Feeding starts with a **Transition period which is a cautious changeover of feed to rehabilitation feed**

Transition Process:

- For the first 2 days (day 1 and 2) replace the stabilizing feed with rehabilitation feed at equal amounts you were giving during the stabilizing feed.
- On day 3, gradually increase the volume of the catch-up feed by 10 ml per feed until some feed remains unfinished. Note for breastfed infants less than 6 months, you will not increase feeds but rather progress to Step 8 (Rehabilitation feeding using the Supplementary Suckling Technique)
- Carefully monitor pulse and respiration rate during the transition phase. If respirations increase by 5 or more breaths / min and pulse by 25 or more beats / min for 2 successive 4 hourly readings, reduce the volume per feed.

Step 8: Achieve Catch up Growth

After the transition phase, a vigorous approach to feeding is required to achieve very high intakes and rapid weight gain of > 10g/kg/day. Feed freely as appetite permits up to 220kcal/kg/day (feed volume 150-220ml/kg/day).

CHILD > 6 MONTHS

If the child is older than 6 months, give F100 as per the prescription table and introduce a balanced soft mixed high-energy diet and add oil or margarine or peanut butter to meals. Prepare food without added salt. Encourage breastfeeding for breastfed children.

- Progress to 5 feeds of F100 and ready to use therapeutic Food (RUTF). Replace the amounts of F100 gradually with RUTF at an exchange of 100ml F100 = 20g RUTF.
- The child may eat the ward diet as well.
- Ensure that the child is tolerating the RUTF at the prescribed amounts prior to discharge.
- Monitor weight gain and plot on weight chart daily. Desirable weight gain to rebuild wasted tissue is >10g/kg/day.
- Plot intake on 24 hour food intake chart
- Plan for ward feeds and plot on daily ward feeding chart

IF THE CHILD IS BELOW 6 MONTHS, CAREFULLY MANAGE THE REHABILITATION PHASE OF THE BREASTFEEDING INFANT LESS THAN 6 MONTHS AS BELOW:-

Rehabilitation Feeding in Infants less than 6 months using the Supplementary Feeding Technique

The main objective is to restore exclusive breastfeeding. Therefore, stimulate and support breast-feeding and supplement the child's breastfeeding with dilute F100 while stimulating production of breast milk.

- Breastfeed on demand or offer breastfeeding every three hours for at least 20 minutes (more if the child cries or demands more). The infant should be breastfed as frequently as possible.
- Between half an hour and one hour after a normal breastfeeding session, give maintenance amounts of therapeutic milk.

Quantities of F100-Diluted

- F100-Diluted is given at 130 ml/kg bodyweight/day, distributed across eight feeds per day.
- Use the table below for maintenance amounts of F100-Diluted to give to infants using the supplementary suckling technique.

Regulation of Amount of F100-Diluted Given

- The progress of the infant is monitored by the daily weight. If the infant loses weight or has a static weight over three consecutive days but continues to be hungry and is taking all the F100-Diluted, add 5 ml extra to each feed.
- Maintenance amounts of F100-Diluted are given using the supplementary suckling technique. If the volume of F100-Diluted being taken results in weight loss, either the maintenance requirement is higher than calculated or there is significant malabsorption. If the infant grows regularly with the same quantity of milk, it means the quantity of breast milk is increasing it means the intake from breast milk is increasing and the infant is taking adequate quantities to meet his/her requirements. The infant should be weighed daily with a scale graduated to within 10 g (or 20 g).

Maintenance Amounts of F100-Diluted for Breastfed Infants

Child's Weight (kg)	F100-Diluted or (ml per feed if 8 feeds per day)
≥ 1.2	25
1.3 – 1.5	30
1.6 – 1.7	35
1.8 – 2.1	40
2.2 – 2.4	45
2.5 – 2.7	50
2.8 – 2.9	55
3.0 – 3.4	60
3.5 – 3.9	65
4.0 – 4.4	70

Once Infant is Gaining Weight at 20 g per Day (Absolute Weight Gain)

- Gradually decrease the quantity of F100-Diluted by one-third of the maintenance intake so that the infant gets more breast milk.
- If the weight gain of 10 g per day is maintained for two-to-three days (after gradual decrease of F100-Diluted), stop F100-Diluted completely.
- If the weight gain is not maintained, increase the amount of F100-Diluted given to 75 percent of the maintenance amount for two-to-three days, and then reduce it again if weight gain is maintained

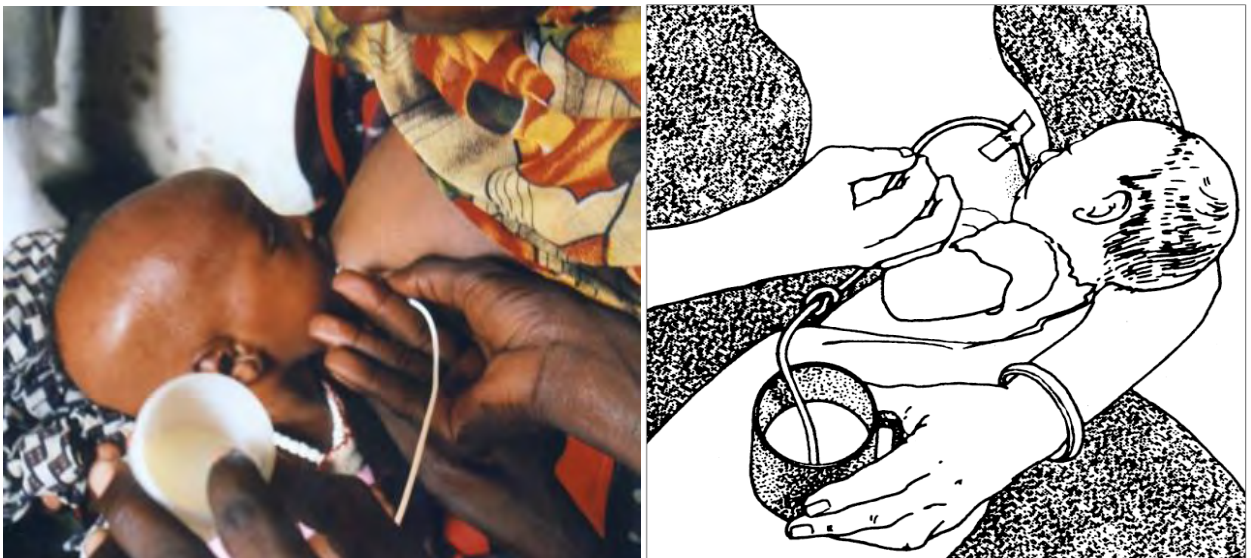
Feeding Procedure

- Ensure good breastfeeding through good attachment and effective suckling. Avoid distractions and let the infant suckle the breast at his/her own speed. Build the mother's confidence to help milk flow.
- Encourage more frequent and longer breastfeeding sessions to increase milk production and remove any interference that might disrupt breastfeeding.
- Use the supplementary suckling technique to provide maintenance amounts of F100-Diluted OR, feed by cup and saucer or NGT by drip (using gravity not pumping).
- Only feed with a NGT when the infant is not taking sufficient milk by mouth. The use of NGT should not exceed three days and should be used in the stabilisation phase only.

Feeding Technique

Use the supplementary suckling technique to re-establish or commence breastfeeding and also to provide maintenance amounts of F100-Diluted to severely malnourished infants. This technique entails the infant sucking at the breast while also taking supplementary F100-Diluted from a cup through a fine tube that runs alongside the nipple. The infant is nourished by the supplementary F100-Diluted while suckling stimulates the breast to produce more milk. The steps required in using the supplementary suckling technique are simple. The caregiver holds a cup with the F100- Diluted. The end of a NGT (size n°8) is put in the cup and the tip of the tube is placed on the breast, at the nipple. The infant is offered the breast with the right attachment. The cup is placed 5-10 centimeters (cm) below the level of the nipple for easy suckling. When the child suckles more strongly, the cup can be lowered to up to 30 cm. After feeding is completed, the tube is flushed through with clean water using a syringe. It is then spun (twirled) rapidly to remove the water in the lumen of the tube by centrifugal force. If convenient, the tube is then left exposed to direct sunlight.

Figure 1. Supplementary Suckling Technique



CHILD < 6 MONTHS WITH NO PROSPECT OF BREASTFEEDING

If the child less than 6 months is not breastfed, give diluted F100 at 130ml / kg / day. Feed 3 hourly. Increase feeds as per the child's appetite. In preparation for discharge via the dietitian the child can be switched to infant formula. Monitor for tolerance.

Step 9: Provide Sensory Stimulation and Emotional Support

Stimulation, play and loving care will markedly improve the child's response to treatment and decrease the period of hospitalization.

- From admission provide tender loving care
- Structure play and activity in a cheerful stimulating environment encouraging mother's/care giver's involvement as far as possible preferably with the involvement of an Occupational Therapist / Physiotherapist.
- One aim should be to play with each child individually for 15 – 30 minutes each day, in addition to informal group play. The mother can be encouraged to facilitate individual play.

Aspects of child development to be promoted are as follows:

- Cognitive skills, Language skills, Motor skills, Exploratory skills, Social skills

Psychosocial assessment of mother / caregiver

- Ensure that the mother / caregiver is able to care for the child and is free of any psychosocial problems. Where necessary, refer and ensure interventions are made for mothers / caregivers who may need additional support. All children with SAM or MAM should be referred to the hospital social worker for assessment, or booked for a social worker to see the patient at the clinic during PHC outreach. It is recommended that the social worker consult with the Department of Social Development to conduct household profiling and provision of a follow up report to the Department of Health. The Hospital social worker must document the outcome of the original assessment, home visit if conducted and follow up care plan.

Step 10: Prepare for follow up after discharge

The ability of the family to provide adequate nutrition and care at home must be assured.

- **While the child is still in the ward**

- Involve the parents/caregivers in feeding and caring for the child as soon as possible, as they will care for the child in the long term.

- **Discharge the child from inpatient care to outpatient care when the following criteria are present:**

0 – 6 months

- Established breastfeeding
- Bilateral pitting oedema resolved
- Child clinically well and alert
- Medical Complications resolved

6 – 59 months

- Appetite returned – tolerating RUTF
- Child clinically well and alert
- Bilateral pitting oedema resolved
- Medical Complications resolved
- Persistent and good weight gain

Every paediatric patient's file should retain a copy of the discharge summary which include details of follow up care in relation to medical care, social well-being and nutritional status.

SOP 6: Neonatal growth and nutrition

PURPOSE	To ensure that the neonate is accurately assessed, classified and treated.																																						
ASSESSMENT	<ul style="list-style-type: none"> - For pre – term / low birth weight infants, refer to SOP 7 for assessment and classification. - Daily weight recordings and assessment for oedema. - Conduct Feeding Readiness Assessment in the Neonate - Monitoring Growth in the Neonate 																																						
CLASSIFICATION	<p>Infants less than < 29 days of age should be assessed on growth since birth:-</p> <p>Ideal rate of weight gain should be $\geq 15\text{g/kg/day}$ (at 2 -3 weeks after birth). Infants found not be meeting this or found to have lost weight (failure to thrive), need to be managed in hospital, counselled extensively and monitored on infant feeding practices as per the prescribed treatment protocols.</p>																																						
TREATMENT	<p>The table below outlines the recommended <u>macro- and micronutrients requirements of preterm/low BW infants:</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Macronutrient Requirements</th> <th style="text-align: center;">BW <1kg ELBW</th> <th style="text-align: center;">BW 1-1.8kg VLBW</th> <th style="text-align: center;">BW 1.8-2.5kg LBW</th> </tr> </thead> <tbody> <tr> <td>Fluid (ml)</td> <td style="text-align: center;">150-180ml/kg (by day 5-7 & onwards)</td> <td style="text-align: center;">150-180ml/kg (by day 5-7 & onwards)</td> <td style="text-align: center;">135-200ml/kg</td> </tr> <tr> <td>Energy (kCal)</td> <td style="text-align: center;">110-135kcal/kg</td> <td style="text-align: center;">110-135kcal/kg</td> <td style="text-align: center;">110-135kcal/kg</td> </tr> <tr> <td>Protein (g)</td> <td style="text-align: center;">4.0-4.5g/kg</td> <td style="text-align: center;">3.5-4.0g/kg</td> <td style="text-align: center;">3.0-3.5g/kg</td> </tr> <tr> <td>Fat, MCT <40% (g)</td> <td style="text-align: center;">4.8-6.6g/kg</td> <td style="text-align: center;">4.8-6.6g/kg</td> <td style="text-align: center;">4.8-6.6g/kg</td> </tr> <tr> <td>Carbohydrates (g)</td> <td style="text-align: center;">11.6-13.2g/kg</td> <td style="text-align: center;">11.6-13.2g/kg</td> <td style="text-align: center;">11.6-13.2g/kg</td> </tr> <tr> <td>Calcium (mg)</td> <td style="text-align: center;">120-140mg/kg</td> <td style="text-align: center;">120-140mg/kg</td> <td style="text-align: center;">120-140mg/kg</td> </tr> <tr> <td>Vitamin D (IU)</td> <td style="text-align: center;">800-1000IU/day</td> <td style="text-align: center;">800-1000IU/day</td> <td style="text-align: center;">800-1000IU/day</td> </tr> <tr> <td>Osmolality</td> <td colspan="3" style="text-align: center;">450mOsm/kg (<i>feeds not to exceed 400mOsm/L</i>)⁷</td> </tr> </tbody> </table> <p>In cases where infants are born before 32 weeks or have a birthweight (BW) less than 1.5kg, breastmilk alone sometimes does not meet the increased nutritional requirements of the infant and the use of a breastmilk fortifier is indicated to <u>ensure adequate growth</u>.</p>			Macronutrient Requirements	BW <1kg ELBW	BW 1-1.8kg VLBW	BW 1.8-2.5kg LBW	Fluid (ml)	150-180ml/kg (by day 5-7 & onwards)	150-180ml/kg (by day 5-7 & onwards)	135-200ml/kg	Energy (kCal)	110-135kcal/kg	110-135kcal/kg	110-135kcal/kg	Protein (g)	4.0-4.5g/kg	3.5-4.0g/kg	3.0-3.5g/kg	Fat, MCT <40% (g)	4.8-6.6g/kg	4.8-6.6g/kg	4.8-6.6g/kg	Carbohydrates (g)	11.6-13.2g/kg	11.6-13.2g/kg	11.6-13.2g/kg	Calcium (mg)	120-140mg/kg	120-140mg/kg	120-140mg/kg	Vitamin D (IU)	800-1000IU/day	800-1000IU/day	800-1000IU/day	Osmolality	450mOsm/kg (<i>feeds not to exceed 400mOsm/L</i>) ⁷		
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Comparison of the macro- and micronutrients of breastmilk and fortified breastmilk.

Per 100ml	Breastmilk*	Fortified Breastmilk
<i>Macronutrients</i>		
Energy	±71kCal	±85kCal
Protein	Varies between 1.2-1.9g ⁷	±3.0g
Fat	3.6g	4.2g
Carbohydrates	6.9g	9g
<i>Micronutrients</i>		
Calcium	32mg	100.6mg
Vitamin D	1.6IU	160IU
<i>Osmolality</i>	±300mOsm/L	±363mOsm/L

*Refer to MBFI training guidelines, reference 6 and 7

Refer to appendices:-

- Feeding the sick / premature baby
- Neonatal SOP on fluids and feeds
- Fluid Management Guideline for sick or premature neonates
- Refer to SOP on Lactation Management and Support).
- Guidelines on Fortification of Breastmilk with FM 85 in neonates with growth faltering and failure to thrive.

Barriers to optimum infant feeding need to be addressed whilst mum is in hospital with infant and followed up within a week of discharge. (See section on Infants < 6 months later on)

KEY MESSAGES	The dietitian must explain to the mother the use of the breastmilk fortifier and be sure to not undermine breastfeeding in anyway. If the mother understands the instructions the breastmilk fortifier can be issued to the mother directly and the dietitian is to ask the nursing staff to supervise the mother and offer assistance as necessary. If the mother is not in the ward and the dietitian is unable to see her at another time that day or if the mother has absconded/demised the fortifier can be left with the nursing staff with instructions for its use. It is the dietitians' responsibility to ensure the patient always has enough breastmilk fortifier to meet their prescriptions.
RELATED DOCUMENTS	KZN Neonatal and Paediatric for In – Patient Management: Enteral and Parenteral Nutrition IMCI Guidelines for Children < 2 months old
RELATED DHIS INDICATORS	Neonatal inpatient rate Neonatal case fatality rate

SOP 7: Low – Birth Weight / Premature Infant growth and nutrition

<p>PURPOSE</p>	<p>To define what are premature and low birth infants, to appropriately classify their nutritional status thereafter. Whilst a premature infant is almost always low birth weight, a low birth weight infant was not always premature. Following neonatal care (0 – 29 days - SOP 6), the ongoing growth monitoring and promotion for this category of patients is different to children of normal birth weight and thus should be managed as below up until 1 year of age.</p>																								
<p>ASSESSMENT</p>	<p>What is a low birth infant? Low Birth Weight (LBW) Infant is any infant born with a birth weight less than 2,5 kg.</p> <table border="1" data-bbox="560 512 1278 938"> <thead> <tr> <th colspan="2">Classification according to BIRTH WEIGHT</th> </tr> <tr> <th>Term</th> <th>Birth weight</th> </tr> </thead> <tbody> <tr> <td>Low Birth Weight (LBW)</td> <td>< 2 500 g</td> </tr> <tr> <td>Very Low Birth Weight (VLBW)</td> <td>< 1 500 g</td> </tr> <tr> <td>Extremely Low Birth Weight (ELBW)</td> <td>< 1 000 g</td> </tr> <tr> <td>Micronate</td> <td>< 750 g</td> </tr> </tbody> </table> <p>What is a premature infant? Preterm birth is defined as:</p> <ul style="list-style-type: none"> - All births before 37 complete weeks of gestation or <table border="1" data-bbox="512 1149 1329 1529"> <thead> <tr> <th colspan="2">Classification according to GESTATION</th> </tr> <tr> <th>Term</th> <th>Gestation</th> </tr> </thead> <tbody> <tr> <td>Extremely preterm</td> <td><28 weeks</td> </tr> <tr> <td>Very preterm</td> <td>28-<32 weeks</td> </tr> <tr> <td>Moderate preterm</td> <td>32 - <37 weeks</td> </tr> <tr> <td>Moderate preterm birth may be further split to focus on late preterm birth</td> <td>34 - <37 weeks</td> </tr> </tbody> </table>	Classification according to BIRTH WEIGHT		Term	Birth weight	Low Birth Weight (LBW)	< 2 500 g	Very Low Birth Weight (VLBW)	< 1 500 g	Extremely Low Birth Weight (ELBW)	< 1 000 g	Micronate	< 750 g	Classification according to GESTATION		Term	Gestation	Extremely preterm	<28 weeks	Very preterm	28-<32 weeks	Moderate preterm	32 - <37 weeks	Moderate preterm birth may be further split to focus on late preterm birth	34 - <37 weeks
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EVALUATION OF GROWTH RATE:

- **Ideal rate of weight gain: ≥ 15 g/ kg / day** (At 2-3 weeks after birth)
Expect an initial weight loss of 5-15% of birth weight during the first week of life. Birth weight should be regained at 10-14 days after birth in both preterm and term infants.
- **Ideal length accretion rate: 0,8 – 1,0 cm / week**
- **Ideal head circumference accretion rate: 0,5 – 0,8 cm / week**
- Head circumference measurements should be done weekly while the infant remains in hospital.
- The growth chart recommended by most for use in assessing the premature infant is International Postnatal Growth Standards for Preterm Infants.
- These revised growth charts were developed based on the growth patterns of the foetus (as has been determined by the size at birth in the large population studies) and the term infant (based on the WHO Growth standard).
- The revised preterm growth chart, harmonized with the WHO Growth standard at 50 weeks, may support an improved transition of preterm infant growth monitoring to the WHO charts at 1 year of age.

When using the WHO growth charts in the RTHB, ensure that weight is plotted according to the corrected gestational age of the infant. It is very important to take the growth curve (trend) into consideration for Premature infants.

CLASSIFICATION & TREATMENT	<ul style="list-style-type: none"> • Preterm babies should start to gain weight from day 5-7 and then gain 1% per kg body weight per day (eg 10g per day for 1000g baby) and should regain birthweight by 14 days at the latest. • Refer to MO and dietitian if weight falls below 3rd percentile and/or if growth is not as described above. 		
	Premature OR Low Birth Weight as classified above		
	Weight Gain (Assess)	Classification (NAM, MAM, SAM)	Treat
	< birth weight OR < 5 g / kg / day weight gain	SAM Refer to hospital immediately.	WHO 10 steps (<6 months protocol).
	5 – 10 g / kg / day weight gain	MAM Refer to hospital.	If breastfed: Assess Breastfeeding (supply, attachment, ability to suckle, output, frequency and length of feeds) and encourage skin to skin. In the absence of a breastfeeding mother, assess formula feeding practises (mixing, dilution, frequency, hygiene).
	10 – 15 g / kg / day weight gain	NAM @ risk	If breastfed: Assess Breastfeeding (supply, attachment, ability to suckle, output, frequency and length of feeds) and encourage skin to skin. In the absence of a breastfeeding mother, assess formula feeding practises (mixing, dilution, frequency, hygiene) Follow-up to clinic in a week to reassess weight
≥15 g / kg / day weight gain	NAM	Ideal rate of weight gain. Continue breastfeeding support and growth monitoring.	

TREATMENT	As above. For neonates 0 – 29 days old. Refer to SOP 6 for Neonates.
KEY MESSAGES	<p>COMPLEMENTARY FEEDING FOR PRETERM INFANTS</p> <p>Factors to consider when deciding on the time to commence with the introduction of complementary food for a LBW infant are:</p> <ol style="list-style-type: none"> 1) The degree of prematurity 2) The chronological age, and 3) The developmental level. <p>It is important that preterm infants have head control and are > 5kg when complimentary feeds start. It is common for preterm infants to be texture averse, speech therapists and occupational therapists may need to be involved.</p>
RELATED DOCUMENTS	<p>KZN Neonatal and Paediatric for In – Patient Management: Enteral and Parenteral Nutrition</p> <p>IMCI Guidelines for Children < 2 months old</p>
RELATED DHIS INDICATORS	<p>Child under 5 severe acute malnutrition case fatality rate</p> <p>Neonatal inpatient rate</p>

SOP 8: Out patient management of children with severe acute malnutrition (6 - 59 months) ^{11,27}

PURPOSE	In consideration that the WHO recommends that children with SAM without complications can be treated as outpatients, this section has been included for the minority of SAM children who live close to a health facility and can afford more frequent follow up visits to the dietitian, rehabilitation team, social worker and higher level of medical care if required. This section may also be utilised in instances of the caregiver refusing admission of the child with SAM or if the medical officer declines admission due to risk for nosocomial infection and limited ward space.																								
ASSESSMENT	<p>The Outpatient Therapeutic program (OTP) is aimed at providing treatment for children 6-59 months with severe acute malnutrition (SAM) who have an appetite and are without medical complications and were not admitted for inpatient management. These children are the SAM ambulatory cases according to DHIS. Ambulatory/Outpatient services can be accessed through delivery of OTP at any of the following service points:</p> <ul style="list-style-type: none"> ● Primary Health Care Clinic: If Patient is able to easily access the nearest PHC clinic for weekly visits and the PHC clinic is well prepared to provide adequate OTP care. <p>OR</p> <ul style="list-style-type: none"> ● Hospital Outpatient Department: If Patient is able to easily access the Hospital Dietetics Department for weekly visits 																								
CLASSIFICATION	<p>There are 2 types of SAM cases without medical complications that will be managed as outpatients:</p> <p>Type 1: Recovering SAM cases referred from Inpatient care to OTP Children who have been referred from inpatient care or another outpatient care site should not be given routine medicines for a second time as they have already been administered to them. The child's records and documentation should be checked for details of medications already given and, where applicable, the remaining schedule of medications and supplements should be continued according to inpatient protocol.</p> <p>Type 2: Newly Identified SAM cases admitted directly to Outpatient care / OTP.</p>																								
TREATMENT	<p>Dietary Treatment</p> <p>Children receive RUTF based on a dose of +- 200 kcal / kg bodyweight / day given as a take-home feed. A weekly supply of RUTF is provided depending on the child's bodyweight. The dietary treatment is managed at home, with the child attending outpatient care sessions on a weekly basis for monitoring health and nutritional status and replenishing stocks of RUTF. Use the RUTF look-up table below for the amounts of RUTF to give on each weekly visit, based on the child's weight at the time of the visit. Explain the daily amount the child will need to consume to the caregiver. In the event that the quantity of RUTF is not tolerated by the child, a dietitian should be consulted to replace the caloric requirements with other available products at the facility.</p> <p>Dietary Treatment using RUTF</p> <table border="0"> <thead> <tr> <th>Child's Weight (kg)</th> <th>Grams per day</th> <th>Tubs per week</th> </tr> </thead> <tbody> <tr> <td>4.0* – 4.9</td> <td>180 (12 tsp)</td> <td>3 x 450g</td> </tr> <tr> <td>5.0 – 6.9</td> <td>225 (15 tsp)</td> <td>4 x 450g</td> </tr> <tr> <td>7.0 – 8.4</td> <td>250 (18 tsp)</td> <td>4 x 450g</td> </tr> <tr> <td>8.5 – 9.4</td> <td>315 (21 tsp)</td> <td>5 x 450g</td> </tr> <tr> <td>9.5 – 10.4</td> <td>375 (25 tsp)</td> <td>6 x 450g</td> </tr> <tr> <td>10.5 – 11.9</td> <td>420 (28 tsp)</td> <td>7 x 450g</td> </tr> <tr> <td>≥12</td> <td>465 (31 tsp)</td> <td>8 x 450g</td> </tr> </tbody> </table>	Child's Weight (kg)	Grams per day	Tubs per week	4.0* – 4.9	180 (12 tsp)	3 x 450g	5.0 – 6.9	225 (15 tsp)	4 x 450g	7.0 – 8.4	250 (18 tsp)	4 x 450g	8.5 – 9.4	315 (21 tsp)	5 x 450g	9.5 – 10.4	375 (25 tsp)	6 x 450g	10.5 – 11.9	420 (28 tsp)	7 x 450g	≥12	465 (31 tsp)	8 x 450g
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KEY MESSAGES

Antibiotic Treatment

- ❖ Give oral antibiotic treatment for a period of five days to be taken at home (give 10 days if needed), based on a dose 50-100 mg/kg bodyweight/day.
- ❖ The first dose should be taken during the admission process under the supervision of the health care provider.
- ❖ An explanation should be given to the caregiver on how to complete the treatment at home.
- ❖ if there is a need for a second-line antibiotic drug, the child will be referred to inpatient care

Measles vaccination

- ❖ Give a single vaccine on week four (or upon discharge) if there is no record of a previous vaccination.
- ❖ Infants less than 12 months who receive a measles vaccination will need one routine measles vaccination when they have reached 12 months.
- ❖ In the case of a measles epidemic in the area, provide measles vaccination upon admission to outpatient care and repeat the vaccination on week four (or upon discharge).

Deworming Treatment

- ❖ Give a single dose of Mebendazole at the second week in treatment, in compliance with the IMCI treatment protocol and/or adapt according to the national protocol.
- ❖ Do not give Mebendazole to children under 1 year.

Children 1–2 years

- ❖ Mebendazole, oral, 100 mg twice daily for 3 days

Children over 2 years

- ❖ Mebendazole, oral, 500 mg as a single dose immediately

Exclude HIV and TB

- ❖ Consider immediate empiric treatment of TB if there is strong evidence that it may be present e.g. CXR changes. HIV treatment should normally be delayed until the acute phase of stabilization is completed – this will also allow time for some counselling before initiating HIV treatment, if it is required, during the rehabilitation phase

Vitamin A

- ❖ Refer any child with signs of vitamin A deficiency to inpatient care for immediate start of treatment, as the condition of the eyes can deteriorate very rapidly and the risk of blindness is high.

Iron and Folic Acid

- ❖ Iron and folic acid are NOT to be given.

	<ul style="list-style-type: none"> ❖ Where anaemia is identified according to IMCI protocols, children are referred to inpatient care and receive treatment in compliance with the IMCI treatment protocol. <p>Vaccination Schedule Update</p> <p>Ensure immunizations are caught up. Record the dose given in the RtHB.</p> <p><i>Malaria Treatment (for malaria prevalent areas in South Africa)</i></p> <ul style="list-style-type: none"> ❖ Routinely screen all children for malaria in endemic areas on admission regardless of their body temperature, if diagnostic tests are available. If in clinical doubt or symptoms, repeat the malaria test in the weeks following the initial test. ❖ If no diagnostic test is available but malaria symptoms are diagnosed, treat the child. ❖ Treat malaria according to the national treatment protocol with first-line artemisinin-based combination therapy (ACT) in compliance with Integrated Management of Childhood Illnesses (IMCI) treatment. <p>Note: A child with SAM cannot auto-regulate his/her body temperature well and tends to adopt the temperature of the environment; thus the child will feel hot on a hot day and cool on a cool day.</p> <p>In malaria-endemic areas, children with SAM should be provided with insecticide-treated bed nets to prevent malaria.</p> <p>In the case of malaria, the child is referred to inpatient care and treatment with a second-line antimalarial drug is provided</p>
RELATED DHIS INDICATORS	Child under 5 SAM Incidence

SOP 9: Children with Neurodevelopment Disorders & Malnutrition^{10,19}

PURPOSE	To ensure that children identified with neuro – development disorders, e.g. cerebral palsy are classified early and appropriately managed to promote optimal nutrition and prevent severe / chronic states of malnutrition.
ASSESSMENT	<p>Assess nutritional status as indicated in SOP 1. Should the health care worker be unable to take the length / height of the child to assess for wasting, then MUAC can be measured to classify for acute malnutrition.</p> <ul style="list-style-type: none"> - Assess the eating and drinking classification system (EDACS) of the child as below. <p>Conduct clinical assessment for wasting as per SOP 1. Conduct diet history and food insecurity assessment.</p>
CLASSIFICATION	<p>MUAC < 11.5 = SAM</p> <p>MUAC 11.6 – 12.4 = MAM</p> <p>Children 3 – 5 years with normal MUAC but who present with > Level 2 EDAC should be classified as NAM at Risk.</p> <p>EDACS CLASSIFICATION for children over 3 years</p> <p>(See Appendix 23 for full descriptors of Levels)</p> <p>Level I Eats and drinks safely and efficiently.</p> <p>Level II Eats and drinks safely but with some limitations to efficiency.</p> <p>Level III Eats and drinks with some limitations to safety; there may be limitations to efficiency.</p> <p>Level IV Eats and drinks with significant limitations to safety.</p> <p>Level V Unable to eat or drink safely – tube feeding may be considered to provide nutrition.</p>
TREATMENT	<p>Treatment of the child with neurodevelopment delays or disorders should be managed by a multi – disciplinary team from as early as possible, to promote optimal nutritional intake.</p> <p>Nutritional treatment / rehabilitation would follow the same protocol as children without these delays.</p> <p>SAM – Referral for inpatient management. MAM – Outpatient supplementation programme NAM at Risk – Outpatient supplementation programme</p>
KEY MESSAGES	<ul style="list-style-type: none"> • Prevention and management of malnutrition in children with neurodevelopment disorders requires a multi – disciplinary approach as early possible.
RELATED DOCUMENTS	<ol style="list-style-type: none"> 1. Resources: Eating and Drinking Ability Classification System (EDACS)
RELATED DHIS INDICATORS	None

SOP 10: Children over 5 years, adolescents and adults with acute malnutrition^{11, 26}

PURPOSE	To ensure that children over 5 years of age, adolescence and adults with acute malnutrition are accurately assessed, classified and treated.		
ASSESSMENT & CLASSIFICATION	ASSESS		CLASSIFY
	5 – 9 years	MUAC <13.5cm or BMI for age <-3SD or visible wasting / bilateral oedema	SAM
		MUAC 13.5 – 14.5 cm Or BMI for age between -2SD & -3SD	MAM
	10 –14 years	MUAC < 16cm or BMI for age <-3SD or visible wasting / bilateral oedema	SAM
		MUAC 16 – 18cm or BMI for age between -2SD & -3SD	MAM
	> 15 years	BMI < 16 kg / m ² or MUAC < 21cm or visible wasting / bilateral oedema	SAM
		BMI 16 – 18 kg / m ² or MUAC 21 – 23cm	MAM
	Pregnancy	MUAC < 21cm or visible wasting / bilateral oedema Assess weight gain in pregnancy – refer to poster	SAM
		MUAC 21 – 23cm	MAM
	Lactation	MUAC < 21cm or visible wasting / bilateral oedema	SAM
MUAC 21 – 23cm		MAM	

TREATMENT

5 - 9 YEARS				
CATEGORY	PRODUCT	DAILY SERVING		MONTHLY
MAM ~500kcal / day	EMM	50g	1 x 50g serving	2 x 1kg pkt
	RUTF	15g	1tsp	1 x 450g tubs
	LFED	50g	1 x 50g serving	2 x 1kg pkt
SAM ~1000kcal / day	EMM	100g	2 x 50g servings	3 x 1kg pkt
	RUTF	30g	2tsp	2 x 450g tubs
	LFED	100g	2 x 50g servings	3 x 1kg pkt
10 - 14 YEARS				
CATEGORY	PRODUCT	DAILY SERVING		MONTHLY
MAM ~600kcal / day	EMM	50g	1 x 50g serving	2 x 1kg pkt
	RUTF	30g	3tsp	3 x 450g tubs
	LFED	50g	1 x 50g serving	2 x 1kg pkt
SAM ~1200kcal / day	EMM	100g	2 x 50g serving	3 x 1kg pkt
	RUTF	60g	4tsp	4 x 450g tubs
	LFED	100g	2 x 50g servings	3 x 1kg pkt
>15 YEARS				
CATEGORY	PRODUCT	DAILY SERVING		MONTHLY
MAM ~650kcal / day	EMM	50g	1 x 50g serving	2 x 1kg pkt
	RUTF	45g	3tsp	3 x 450g tubs
	LFED	50g	1 x 50g	2 x 1kg pkt
SAM ~1300kcal / day	EMM	100g	2 x 50g serving	3 x 1kg pckt
	RUTF	75g	5tsp	5 x 450g tubs
	LFED	100g	2 x 50g servings	3 x 1kg pkt
PREGNANT				
CATEGORY	PRODUCT	DAILY SERVING		MONTHLY
MAM / NAM ~900kcal / day	EMM	100g	2 x 50g servings	3 x 1kg pkt
	LFED	100g	2 x 50g servings	3 x 1kg pkt
SAM ~1500kcal / day	EMM	200g	4 x 50g servings	6 x 1kg pkt
	LFED	150g	3 x 50g servings	5 x 1kg pkt
LACTATING				
CATEGORY	PRODUCT	DAILY SERVING		MONTHLY
MAM / NAM ~1130kcal / day	EMM	100g	2 x 50g servings	3 x 1kg pkt
	LFED	100g	2 x 50g servings	3 x 1kg pkt
	RTUF	45g	3tsp	3 x 450g tubs
SAM ~1800kcal / day	EMM	200g	4 x 50g serving	6 x 1kg pckt
	LFED	150g	3 x serving	6 x 1 kg
	RUTF	45g	3tsp	4 x 450g tubs

KEY MESSAGES

Good nutrition can:

	<ul style="list-style-type: none"> • Help people feel strong physically and mentally and look healthy • Strengthen the immune system to fight infection • Help people stay productive and able to do physical activities • Help prevent malnutrition • Improve drug adherence and effectiveness • Help manage common symptoms of illness and drug side effects <p>The South African Food Based Dietary Guidelines and Food Guide forms the basis of nutrition education. For patients who need to gain weight, advice to increase energy density of meals and snacks should be provided. Patients must be advised nutrition supplements provided are therapeutic in nature and not meant to be used by other members of the family. Nutrition supplements should be used as prescribed by the health worker who provided them. Nutrition supplements are only provided to correct undernutrition and are not means of resolving food insecurity. Patients that are food insecure as outlined in the introduction should be referred to SASSA / DSD for additional support. Below is a summary of the food based dietary guidelines.</p> <p>Enjoy a variety of foods.</p> <ol style="list-style-type: none"> 1. Be active! 2. Drink lots of clean, safe water. <p>Guidelines to help plan good mixed meals:</p> <ol style="list-style-type: none"> 3. Make starchy food part of most meals. 4. Eat plenty of vegetables and fruit every day. 5. Eat dry beans, split peas, lentils and soya regularly. 6. Fish, chicken, lean meat or eggs could be eaten daily. 7. Have milk, maas or yoghurt every day. 8. Use fat sparingly; choose vegetable oils rather than hard fats <p>Guidelines about the use of foods that are commonly used but can be harmful when too much is used.</p> <ol style="list-style-type: none"> 9. Use salt and foods high in salt sparingly. 10. Use sugar and food and drinks high in sugar sparingly.
RELATED DOCUMENTS	Guidelines for the management of TB & HIV Guidelines for Maternity Care in South Africa 2016
RELATED DHIS INDICATORS	Patients 5 years and older receiving therapeutic supplements

SOP 11: Childhood stunting ^{4, 29}

PURPOSE	To create awareness of the problem of childhood stunting so that prevention can be intensified.										
ASSESSMENT	Assess height and age for all children under 5, as outlined in SOP 1: Growth Monitoring and Promotion.										
CLASSIFICATION	<p>Length/height-for-age:</p> <ul style="list-style-type: none"> • below -2 line means a child is <i>stunted</i>, • below -3 line means child is <i>severely stunted</i> 										
PREVENTION	<p>Prevention of Childhood Stunting</p> <p>The child who presents with stunting and no acute malnutrition is at a higher risk of developing childhood overweight and obesity if provided with nutrition supplements and / or energy dense foods. The caregiver needs to be encouraged to bring in the child for Growth Monitoring and Promotion according to schedule and counselled on providing nutritious foods to the child as per the complementary feeding guidelines and messages in the Road to Health Booklet on Nutrition.</p> <table border="1" data-bbox="379 734 1457 1939"> <thead> <tr> <th data-bbox="379 734 643 801">Step</th> <th data-bbox="651 734 1457 801">Action</th> </tr> </thead> <tbody> <tr> <td data-bbox="379 808 643 976">Step 1: Improve nutritional status of pregnant & lactating women</td> <td data-bbox="651 808 1457 976">Ensure that pregnant and lactating mothers are adequately nourished. Assessment of nutritional status and nutrition education during pregnancy. Malnourished pregnant women should be provided with therapeutic nutrition supplements.</td> </tr> <tr> <td data-bbox="379 983 643 1379">Step 2: Improve Optimal breastfeeding practices</td> <td data-bbox="651 983 1457 1379"> <p>Breastfeeding is key to ensuring a child’s healthy growth and development. Early initiation and exclusive breastfeeding for six months provides protection against gastrointestinal infections, which can lead to severe nutrient depletion and therefore stunting.</p> <p>Breast milk is also a key source of nutrients during infection.</p> <p>Continued breastfeeding in the second year contributes significantly to intake of key nutrients that are lacking in low-quality complementary diets in resource-poor settings</p> </td> </tr> <tr> <td data-bbox="379 1386 643 1588">Step 3: Complementary Feeding</td> <td data-bbox="651 1386 1457 1588">Improve the quality of the diet of children 6 – 24 months with additional emphasis on quality of nutrition education at health facilities and community events. Greater dietary diversity and the consumption of foods from animal sources are associated with improved linear growth.</td> </tr> <tr> <td data-bbox="379 1594 643 1939">4. Integrate Nutrition with nutrition sensitive interventions such as household, environmental, socioeconomic and cultural factors</td> <td data-bbox="651 1594 1457 1939">Prevention of infections requires household practices such as proper hand-washing with soap, the success of which depends on behaviour change to adopt the practice (culture), the availability of safe water (water supply), and the affordability of soap (socioeconomic status). Similarly, the availability of high-quality foods (food supply) and affordability of nutrient-rich foods (socioeconomic status) will affect a family’s ability to provide a healthy diet and prevent child stunting.</td> </tr> </tbody> </table> <p>Interventions targeted at increasing exclusive breastfeeding rates; reducing rates of anaemia in women of reproductive age, and reducing the rate of infants born with low</p>	Step	Action	Step 1: Improve nutritional status of pregnant & lactating women	Ensure that pregnant and lactating mothers are adequately nourished. Assessment of nutritional status and nutrition education during pregnancy. Malnourished pregnant women should be provided with therapeutic nutrition supplements.	Step 2: Improve Optimal breastfeeding practices	<p>Breastfeeding is key to ensuring a child’s healthy growth and development. Early initiation and exclusive breastfeeding for six months provides protection against gastrointestinal infections, which can lead to severe nutrient depletion and therefore stunting.</p> <p>Breast milk is also a key source of nutrients during infection.</p> <p>Continued breastfeeding in the second year contributes significantly to intake of key nutrients that are lacking in low-quality complementary diets in resource-poor settings</p>	Step 3: Complementary Feeding	Improve the quality of the diet of children 6 – 24 months with additional emphasis on quality of nutrition education at health facilities and community events. Greater dietary diversity and the consumption of foods from animal sources are associated with improved linear growth.	4. Integrate Nutrition with nutrition sensitive interventions such as household, environmental, socioeconomic and cultural factors	Prevention of infections requires household practices such as proper hand-washing with soap, the success of which depends on behaviour change to adopt the practice (culture), the availability of safe water (water supply), and the affordability of soap (socioeconomic status). Similarly, the availability of high-quality foods (food supply) and affordability of nutrient-rich foods (socioeconomic status) will affect a family’s ability to provide a healthy diet and prevent child stunting.
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	<p>birth weight are all associated with a decreased risk of stunting.</p> <p>Children who present with stunting only, and no other forms of nutrition should not be given nutrition supplements as this can promote the development of obesity.</p>
KEY MESSAGES	<p>Stunted children who experience rapid weight gain after the age of 2 years have an increased risk of becoming overweight or obese later in life. Such weight gain is also associated with a higher risk of coronary heart disease, stroke, hypertension and type 2 diabetes. Thus parents and caregivers should be cautious not to feed children energy dense and nutrient poor foods.</p>
RELATED DOCUMENTS	<p>IMCI Guidelines</p>
RELATED DHIS INDICATORS	<p>None</p>

SOP 12: Children under 5 with overweight / obesity ^{29, 30, 31}

PURPOSE	To promote early case detection and appropriate management for children under 5 overweight. Overweight increases the risk of chronic diseases such as coronary heart disease, diabetes, and hypertension. Thus early detection and prevention is optimal.								
ASSESSMENT & CLASSIFICATION	<p>Refer to SOP 1 on Growth Monitoring and Promotion. Regular plotting on the Weight for Height Chart in the Road to Health Booklet will promote early case detection.</p> <p>Weight for length / height:</p> <ul style="list-style-type: none"> • above +2 line means a child is overweight • above +3 line means child is obese 								
TREATMENT	<p>Staged Approach to Weight Management in Children (6 months – 5 years)</p> <table border="1"> <tr> <td data-bbox="379 472 624 719"> <p><u>Stage 1</u> Prevention Plus</p> </td> <td data-bbox="632 472 1452 719"> <p>Can be implemented in a primary care office setting, 5 or more servings of fruits and vegetables per day, minimize or eliminate consumption of sugar-containing beverages, <2 hours of screen time and >1 hour of physical activity per day. Follow up: Tailor to the patient and family motivation. A minimum of 2 monthly follow up. After 2nd follow up visit if weight velocity continues to increase, advance to stage 2.</p> </td> </tr> <tr> <td data-bbox="379 721 624 898"> <p><u>Stage 2</u> Structured Weight Management</p> </td> <td data-bbox="632 721 1452 898"> <p>Can be implemented at PHC with a dietitian, includes stage 1 guidelines plus documented structure of meals and snacks with attention to energy density of foods. Follow up: A minimum of monthly follow up with a dietitian. If following 2 visits, weight velocity continues to increase, advance to stage 3.</p> </td> </tr> <tr> <td data-bbox="379 900 624 1189"> <p><u>Stage 3</u> Comprehensive Multidisciplinary Intervention</p> </td> <td data-bbox="632 900 1452 1189"> <p>Can be implemented at PHC with a multidisciplinary team and outside facilities for structured physical activity with occupational therapist, includes stage 2 guidelines plus increased structured physical activity and dietary program. Development of short term diet and physical activity goals. Follow up: A minimum of monthly follow up with the dietitian and occupational therapist. If following 3 visits, weight velocity continues to increase, advance to stage 4.</p> </td> </tr> <tr> <td data-bbox="379 1191 624 1368"> <p><u>Stage 4</u> Tertiary Care Intervention</p> </td> <td data-bbox="632 1191 1452 1368"> <p>Should be implemented at regional / tertiary level with a multidisciplinary team including expertise in paediatric obesity. In addition to stage 3 recommendations, medications, extremely structured dietary regimens, psychological / psychiatric assessment and intervention. Refer to Appendix 24.</p> </td> </tr> </table>	<p><u>Stage 1</u> Prevention Plus</p>	<p>Can be implemented in a primary care office setting, 5 or more servings of fruits and vegetables per day, minimize or eliminate consumption of sugar-containing beverages, <2 hours of screen time and >1 hour of physical activity per day. Follow up: Tailor to the patient and family motivation. A minimum of 2 monthly follow up. After 2nd follow up visit if weight velocity continues to increase, advance to stage 2.</p>	<p><u>Stage 2</u> Structured Weight Management</p>	<p>Can be implemented at PHC with a dietitian, includes stage 1 guidelines plus documented structure of meals and snacks with attention to energy density of foods. Follow up: A minimum of monthly follow up with a dietitian. If following 2 visits, weight velocity continues to increase, advance to stage 3.</p>	<p><u>Stage 3</u> Comprehensive Multidisciplinary Intervention</p>	<p>Can be implemented at PHC with a multidisciplinary team and outside facilities for structured physical activity with occupational therapist, includes stage 2 guidelines plus increased structured physical activity and dietary program. Development of short term diet and physical activity goals. Follow up: A minimum of monthly follow up with the dietitian and occupational therapist. If following 3 visits, weight velocity continues to increase, advance to stage 4.</p>	<p><u>Stage 4</u> Tertiary Care Intervention</p>	<p>Should be implemented at regional / tertiary level with a multidisciplinary team including expertise in paediatric obesity. In addition to stage 3 recommendations, medications, extremely structured dietary regimens, psychological / psychiatric assessment and intervention. Refer to Appendix 24.</p>
<p><u>Stage 1</u> Prevention Plus</p>	<p>Can be implemented in a primary care office setting, 5 or more servings of fruits and vegetables per day, minimize or eliminate consumption of sugar-containing beverages, <2 hours of screen time and >1 hour of physical activity per day. Follow up: Tailor to the patient and family motivation. A minimum of 2 monthly follow up. After 2nd follow up visit if weight velocity continues to increase, advance to stage 2.</p>								
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<p><u>Stage 4</u> Tertiary Care Intervention</p>	<p>Should be implemented at regional / tertiary level with a multidisciplinary team including expertise in paediatric obesity. In addition to stage 3 recommendations, medications, extremely structured dietary regimens, psychological / psychiatric assessment and intervention. Refer to Appendix 24.</p>								
KEY MESSAGES	<ul style="list-style-type: none"> • The concept of childhood overweight / obesity may be new to some mothers / caregivers and thus needs to be well explained using the charts in the Road to Health Booklet. The health workers must emphasize the need for regular growth monitoring and promotion to ensure the child does not lose weight excessively following advice given. The promotion of exclusive breastfeeding in children < 6 months of age. • Avoiding the use of added sugars and cereals / starches in instances where children are fed infant formula. Instructing mothers to accept their infant’s ability to regulate energy intake rather than force feeding them; The timing, quality and quantity of complementary feeding needs to ensure appropriate macro and micronutrient intake to promote optimal linear growth; if an overweight child is losing weight over time, and the weight loss is reasonable, the child should continue to grow in height. However, if the child experiences no growth in height over time, there is a problem. This problem would be evident as a flat growth line on the height-for-age chart. 								
RELATED DOCUMENTS	SOP on the prevention and management of overweight and obesity in children over 5 and adolescence. Refer to Early childhood development nutrition guidelines for support visits to ECD sites.								
RELATED DHIS INDICATORS	Child under 5 years overweight or obese – new								

SOP 13: Children and Adolescents (5 – 19 years) with overweight / obesity

PURPOSE	Over nutrition results in overweight/obesity, which are descriptions of a person's body mass index (weight/height) and indicate that they carry too much weight for their height. Being overweight or obese increases the risk of chronic diseases such as coronary heart disease, diabetes, and hypertension. The purpose of this section is to promote the early identification of children 5 – 19 years that are overweight and obese. It is also important to manage children over 5 and adolescence with overweight and obesity, to prevent the condition progressing into adulthood.					
ASSESSMENT	The weight / height for all adolescence should be taken at every visit at a health facility and during school health assessments. The gender/age specific charts must be available.					
CLASSIFICATION	<p>Calculate the BMI for the adolescent using the BMI Wheel or the calculation below. $\text{Weight} / (\text{Height} \times \text{Height}) = \text{BMI in kg/m}^2$.</p> <p>Plot the BMI on the adolescent gender specific chart (Appendices 3 & 4). Classify using the table below and the chart.</p> <table border="1" data-bbox="379 752 1458 898"> <tr> <td data-bbox="379 752 919 824">Child / Adolescent > 5 years: > 2 SD BMI for age</td> <td data-bbox="927 752 1458 824">Obese</td> </tr> <tr> <td data-bbox="379 831 919 898">Child / Adolescent > 5 years: Between + 1 and +2SD BMI for age</td> <td data-bbox="927 831 1458 898">Overweight</td> </tr> </table>		Child / Adolescent > 5 years: > 2 SD BMI for age	Obese	Child / Adolescent > 5 years: Between + 1 and +2SD BMI for age	Overweight
Child / Adolescent > 5 years: > 2 SD BMI for age	Obese					
Child / Adolescent > 5 years: Between + 1 and +2SD BMI for age	Overweight					
REFERRAL & TREATMENT	<p>Stage 1 – Overweight / Obese</p> <p>Treatment at PHC or Hospital</p> <p>Stage 2 – Overweight / Obese no progress at PHC or Hospital after 2 visits. Structured Weight Management</p> <p>Stage 3 – Obese at Hospital only</p> <p>Comprehensive Multidisciplinary Intervention</p>	<p>Individualised nutrition education with main caregiver. Encourage intake of 5 or more servings of fruits and vegetables per day, minimize or eliminate consumption of sugar-containing beverages, Decrease hours of television / electronic devices time and increase (> 1 hour of physical activity per day). Reduce added fat and sugar in the diet, e.g fried foods, processed foods (chips, chocolate, juices, biscuits)</p> <p>Can be implemented at PHC with a dietitian & occupational therapist, includes stage 1 guidelines plus increased structure of meals and snacks with attention to energy density of foods and assessment of physical activity level.</p> <p>Should be implemented at hospital level with a multidisciplinary team and outside facilities for structured physical activity, includes increased structured physical activity (with involvement of physiotherapist / occupational therapist) and dietary program. Psychologist intervention for behavioural therapy if required.</p> <p>Refer to Appendix 24</p>				
KEY MESSAGES	<ul style="list-style-type: none"> The concept of adolescent overweight / obesity as a health condition may be new to some mothers / caregivers / adolescents and thus needs to well explained using the gender specific BMI Charts. This age category may also present with concerns related to social stigma, eating disorders and peer pressure as relates to weight and body image. Health workers must be sensitive to allow for privacy during assessment, classification and counselling. 					
RELATED DOCUMENTS	Integrated School Health Policy, Youth Friendly Services					
RELATED INDICATORS	School learner overweight rate					

SOP 14: Adults with overweight / obesity

PURPOSE	To assess all adults attending health care facilities for overweight and obesity and to provide the appropriate dietary treatment to prevent perpetuation of the disease state and promote good nutritional status.																														
ASSESSMENT	Assess all adults for weight, height and then calculate BMI. In patients classified with overweight / obesity, measure waist circumference for on – going follow up to measure progress.																														
CLASSIFICATION	<p>CLASSIFY:</p> <p>The International Classification of adult underweight, overweight and obesity according to BMI</p> <table border="1" data-bbox="379 510 1453 1077"> <thead> <tr> <th rowspan="2">Classification</th> <th colspan="2">BMI (kg/m²)</th> </tr> <tr> <th>Principal cut-off points</th> <th>Additional cut-off points</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Normal range</td> <td rowspan="2">18.50 - 24.99</td> <td>18.50 - 22.99</td> </tr> <tr> <td>23.00 - 24.99</td> </tr> <tr> <td>Overweight</td> <td>≥25.00</td> <td>≥25.00</td> </tr> <tr> <td rowspan="2">Pre-obese</td> <td rowspan="2">25.00 - 29.99</td> <td>25.00 - 27.49</td> </tr> <tr> <td>27.50 - 29.99</td> </tr> <tr> <td>Obese</td> <td>≥30.00</td> <td>≥30.00</td> </tr> <tr> <td rowspan="2">Obese class I</td> <td rowspan="2">30.00 - 34.99</td> <td>30.00 - 32.49</td> </tr> <tr> <td>32.50 - 34.99</td> </tr> <tr> <td rowspan="2">Obese class II</td> <td rowspan="2">35.00 - 39.99</td> <td>35.00 - 37.49</td> </tr> <tr> <td>37.50 - 39.99</td> </tr> <tr> <td>Obese class III</td> <td>≥40.00</td> <td>≥40.00</td> </tr> </tbody> </table> <p>Waist Circumference (WC)</p> <p>Increased WC is an indicator of abdominal obesity and is a known risk factor for increased risk for CHD. Should the cut-off for WC be exceeded, it places an individual at risk for the development of NCDs. The universally recognised cut-offs for waist circumference are:</p> <p>African and Caucasian Men : > 94cm</p> <p>African, Asian and Caucasian Women : > 80cm</p> <p>Asian Men : > 90cm</p> <p>BMI and WC are quick and easy to measure and provide useful information in identifying those that are overweight, obese and at risk for CHD.</p>	Classification	BMI (kg/m ²)		Principal cut-off points	Additional cut-off points	Normal range	18.50 - 24.99	18.50 - 22.99	23.00 - 24.99	Overweight	≥25.00	≥25.00	Pre-obese	25.00 - 29.99	25.00 - 27.49	27.50 - 29.99	Obese	≥30.00	≥30.00	Obese class I	30.00 - 34.99	30.00 - 32.49	32.50 - 34.99	Obese class II	35.00 - 39.99	35.00 - 37.49	37.50 - 39.99	Obese class III	≥40.00	≥40.00
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TREATMENT	The prevention and management of overweight and obesity is multi – faceted, and requires multi – disciplinary approach. The dietary meal plans to assist in the nutrition management of overweight and obesity are available in Circular G53 - Guidelines for the prevention and management of overweight/obesity.																														
KEY MESSAGES	To have a healthy eating plan: <ul style="list-style-type: none"> • Eat the right amount for your needs – examples of food intake plans for three different energy levels are given. • Choose a food intake pattern that suits the food you have available to you and that you can afford. 																														

	<ul style="list-style-type: none"> • Enjoy a variety of foods from each food group within a day, from week to week and during the year when different foods are available. • Use foods from most of the food groups, most days of the week. • Most of the eating plan will consist of foods from plants; some foods from animals may be included. • Water is an important part of healthy eating; make plans to be sure you have water available during the day.
RELATED DOCUMENTS	Circular G53 KZN Guidelines on the prevention and management of overweight and obesity.
RELATED DHIS INDICATORS	Adults with BMI > 30

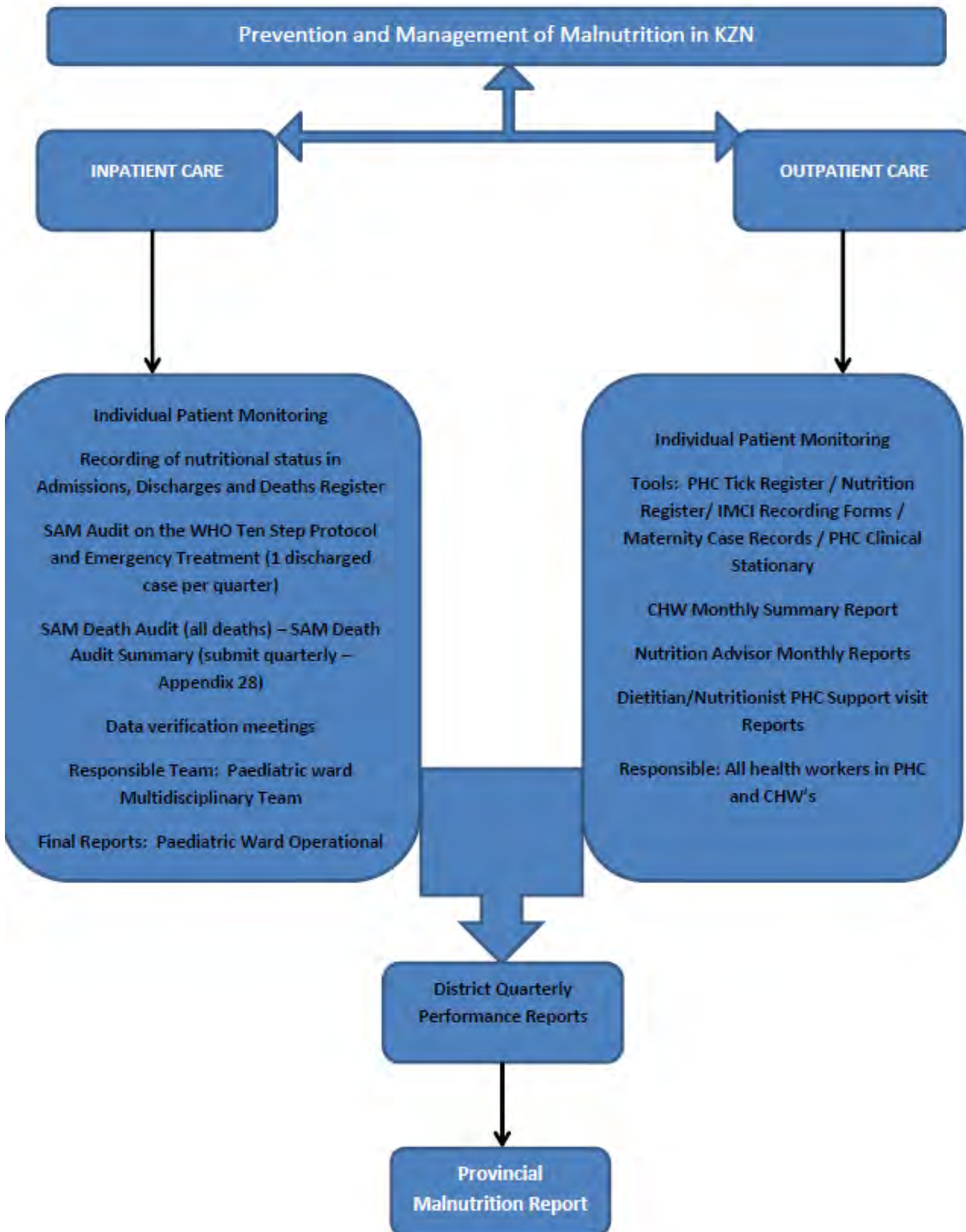
SOP 15: Community Outreach ^{11, 15, 17}

PURPOSE	To promote early detection of malnutrition at community level and ensure continuum of care.
TOOLS	CHW Nutrition Follow up tool (Appendix 25 & 26). This tool should be used by CHW's during home visits to identified households of children who were discharged with SAM and did not return for follow up, or who were entered into the nutrition register and did not return for follow up. The referral pathway of children identified with malnutrition in KZN is cyclical to ensure that children are not lost to follow up, or to the system. Consistent documentation and team work in the referral pathway is critical to its success.
REFERRAL PATHWAY	<pre> graph TD A[SAM Inpatient] --> B[Paediatric Ward Multi-Disciplinary Team] B --> C[PHC Clinic for Outpatient Supplementary Programme- PHC Operational Manager, IMCI Nurse, Nutrition Advisor] B --> D[SASSA (if required)] D --> E[District Clinical Specialist Team, District Nutrition Co-ordinator / Nutritionist] E --> F[Provincial SAM Database] C --> G[HOME] G --> H[Immunisation, Growth Monitoring, Vitamin A, Infant and young child feeding counselling] H --> C C --> I[Philamntwana Centre, Community Health Worker, Ward based outreach team] I --> J[Operation Sukuma Sakhe War Room (if required)] F --> C </pre>
KEY MESSAGES	Maintaining community linkages and a reliable tracking system for children identified with malnutrition is critical to prevent relapse of malnutrition and poor child health outcomes. The Operational Manager at each clinic should keep a file of the returned CHW. Follow up Tools and action where appropriate that which is beyond the scope of the CHW / Nutrition Advisor.
RELATED DOCUMENTS	Appendix: CHW Nutrition Follow Up Tool
RELATED DHIS INDICATORS	MUAC Screened by CHW

MONITORING AND EVALUATION

An effective M&E Framework will help to identify desired outcomes from implementation. In the context of the current guidelines, monitoring will take place at inpatient level by the hospital based MDT and at outpatient level by the PHC team. All relevant team members should be familiar with and able to use the monitoring tools.

Monitoring and Evaluation Framework



DATA MANAGEMENT

Data Verification, Data Review, Data Analysis and Feedback Systems

- Data Verification processes or systems are an internal data checking mechanism.
- Review and feedback systems promote awareness, entrench data management, ensure involvement and ownership and contribute towards effective utilization of data
- Check data collection tools (previous months data) for completeness and understanding
- Tick register, nutrition supplementation register, weekly summary, monthly summary
- Compare data with the DHIS report
- Identify any gaps and discrepancy in the data
- Clarifications must be provided for any discrepancies in data (i.e. error in recordings etc.)
- Make recommendations and comments for correction of data
- Check data flow at point of collection, with FIO at data verification meetings, and DIO.

CONTACT LISTS

DISTRICT DATABASE OF DEPARTMENT OF SOCIAL DEVELOPMENT (DSD)

The Department of Social Development is responsible for ensuring the universal availability and adequate quality of, and equitable access to, inclusive learning opportunities for children aged birth to until the year before they enter formal school through the development, delivery, regulation, registration, quality monitoring, improvement and evaluation of early childhood development programmes. The Department of Social Development will develop and register these programmes in collaboration with the Department of Basic Education. Further information on DSD services and the Children Services Directory can be found on the link below.

www.dsd.gov.za

	Responsibility	Contact Number	
Ethekwini North	Social Worker Supervisors	0313368770 0313368784 0313368750	
Ethekwini South		0313368770 0313368773 0313368753	
Ilembe		0313368790 0313368786	
Umgungundlovu		0333959730 0333959694 0333959694	
Ugu			
Harry Gwala		0398341668 0398341176	
Amajuba		Social Worker Manager	0366346600
Uthukela		Social Worker Manager	0366346612
Umzinyathi		Social Worker Manager	0342123951
Umkhanyakude		Social Worker Manager	0355958110
King Cetshwayo	Social Worker Manager	0357971600	
Zululand	Social Worker Supervisors	0358748559 0358748570	

DISTRICT DATABASE OF SOUTH AFRICAN SOCIAL SECURITY AGENCY (SASSA)

The South African Social Security Agency is responsible for the provision of social assistance (grants) to all eligible children and their caregivers. SASSA also implements the Zero Hunger Campaign, which aims to support caregivers of children identified with malnutrition that is as a result of food insecurity with emergency food relief. Further information on social grants and the SASSA can be found on the link below.

www.sassa.gov.za

Name Of Office	Rank	Tel. Number
Ulundi District Office	District Manager	035 874 6101
		035 874 6129
Mahlabathini	Assistant Manager	035 873 8236
Inkanyezi	Manager	035 473 1200
	Assistant Manager	035 474 1152
Louwsburg	Team Leader	034 907 6200
Mbazwana	Assistant Manager	035 571 6062
Vryheid	Assistant Manager	034 989 6603
Esikhaleni	Manager	035 796 8321
	Assistant Manager	035 796 8321
Mondlo	Manager	034 933 0304
	Assistant Manager	034 933 0307
Babanango	Assistant Manager	035 874 6300
Melmoth	Assistant Manager	035 450 3249
	Team Leader	
Nongoma	Manager	035 831 3133
	Assistant Manager	035 831 0142
KwaMsane	Assistant Manager	035 551 1850
	Team Leader	035 551 9101
Paulpietersburg	Assistant Manager	034 996 7023
	Team Leader	
Hlabisa	Assistant Manager	035 838 1163
	Team Leader	
Richards Bay	Assistant Manager	035 797 5136
	Team Leader	
Lower Mfolozi	Manager	035 794 1061
	Assistant Manager	035 794 2395

Ubombo	Assistant Manager	035 595 1090
	Team Leader	035 595 1238
Pongola	Assistant Manager	034 413 9800
	Team Leader	
Manguzi	Manager	035 592 9861
	Team Leader	035 592 9549
Ingwavuma	Assistant Manager	035 591 2109
	Team Leader	035 591 2100
Nkandla	Assistant Manager	035 833 7600/10

DISTRICT DATABASE OF DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT (DARD)

The Department of Agriculture, Forestry and Fisheries is responsible for improving the food production capacity of households and poorly resourced farmers, and for the development of market channels for food. Health facilities, or health workers knowing patients that require support with this can contact their local office on the details below. Further information on the services offered by DARD can be found on the site below.

www.kzndard.gov.za

NORTH REGION			SOUTH REGION		
OFFICE	ADDRESS	TEL NO.	OFFICE	ADDRESS	TEL NO.
REGIONAL OFFICE	P/Bag X1048 Richard's Bay 3900	035-780 6700	REGIONAL OFFICE	P/Bag X 6005 Hilton, 3245	033-3438300
ESHOWE	P/Bag X552 Eshowe 3815	035-474 2183	UMGUNGUNDLOVU - DC22	P/Bag X2 Cascades 3202	033-347 6200
AMAJUBA	P.O. Box 170 Newcastle 2940	034-312 4614	CAMPERDOWN	P/Bag X07 Camperdown 3720	031-785 1599
UTHUNGULU	P/Bag X552 Eshowe 3815	035-4742183	UMSUNDUZI [Pietermaritzburg]	368 Townbush Road, Pietermaritzburg	033-342 4614
ZULULAND	P/Bag X5079 Nongoma 3950	035-831 0326	SISONKE - DC43	P/Bag X 6005 Hilton, 3245	033 343 8300
NONGOMA	P/Bag X5079 Nongoma 3950	035-831 0326	IXOPO	P.O.Box 5775 Ixopo 3276	039-834 1032
UMZINYATHI	P.O. Box 125 Dundee 3000	034-299 9661	HLANGANANI	Polela Area Hlanganani	039-832 9479
UMKHANYAKUDE	48 Jan Smuts Avenue Mtubatuba	035-550 0210	ETHEKWINI	40 Dr. A.B. Xuma St. Commercial City Building 17 th Floor Durban 4000	031-328 9300
MSINGA	P/Bag X504 Tugela Ferry 3010	033-493 0002	Durban South UMBUMBULU	P/Bag X 20014 Amanzintoti 2105	031-915 0044
JOZINI	P/Bag X006 Jozini 3969	035-5721280	ILEMBE - DC29	P.O. Box 4664 Stanger 4450	032-552 5302
VRYHEID	P/ Bag X9423 Vryheid 3100	034-980 9098	STANGER	P.O. Box 4664 Stanger 4450	032-552 5302
DUNDEE	P O Box 125 Dundee 3000	034-2181041/2	NDWEDWE	P/Bag X511 Ndwedwe 4342	032-533 4018
PONGOLA	P O Box 177 Pongola 3170	034-413 1370	MAPHUMULO	P/Bag X 9226 Maphumulo 4470	032-481 2184
MADADENI	P/Bag X4006 Osizweni 2952	034-366 9131	UGU - DC21	P/Bag X 885 Port Shepstone 4220	039-682 2045
SIMDLANGETSHANA	P/bag X0016 Pongola 3170	034-413 6187	IZINGOLWENI	P/Bag X 1022 Harding 4680	039-433 0110
NQUTHU	P/Bag X5501 Nqutu 3135	034-271 0010	UMZUMBE	P/Bag X144 Mtwalume 4186	039-699 1761
HLABISA	P/Bag X5002 Hlabisa 3937	035-838 1044	VULAMEHLO	P/Bag X 530 Umzinto 4200	039-974 0141
UMVOTI	P/ Bag X5607 Greytown 3250	033-413 2155	UTHUKELA - DC23	P/Bag X 9905 Ladysmith 3370	036-634 6323
MAHLABATHINI	P/Bag X525 Mahlabathini 3865	035-873 0322	LADYSMITH	P/Bag X 10042 Ladysmith 3370	036-631 4908
EMPANGENI	P/Bag X20018 Empangeni 3880	035-792 1624	BERGVILLE	P/Bag X 1620 Bergville 3350	036-438 6478
ULUNDI	P/Bag X22 Ulundi 3838	035-874 3298	LOSKOP	P/Bag X 026 Loskop 3330	036-431 8134
NEWCASTLE	P.O. Box 170 Newcastle 2940	034-3124614	UMZIMKULU	P/Bag X527 Umzimkulu 3297	039-259 0262 039-259 0204

DEPARTMENT OF SPORTS & RECREATION

The KZN Department of Sports and Recreation supports communities with sporting and physical activity opportunities. For further information on activities and processes to request support please contact the offices below. Further information on the DSR can be found on the link below.

www.dsr.gov.za

	DISTRICT NAME	TELEPHONE	E-mail
1	AMAJUBA	034 – 312 4561	siphephelo.maluleka@kzndsr.gov.za
2	ETHEKWINI	031 – 242 1749	gugu.khumalo@kzndsr.gov.za
3	HARRY GWALA	039 834 5300	ndiphiwe.gidi@kzndsr.gov.za
4	ILEMBE	032 – 552 2276	Erick.hlaluka@kzndsr.gov.za nompumelelo.hadebe@kzndsr.gov.za
5	KING CETSHWAYO	035 – 780 9300	matilda.chiya@kzndsr.gov.za
6	UGU	039-312 6420	thembanini.yengwa@kzndsr.gov.za
7	UMGUNGUNDLOVU	033 – 897 9432	thulani.nhleko@kzndsr.gov.za
8	UMKHANYAKUDE	035 – 780 9300	wiseman.madi@kzndsr.gov.za
9	UMZINYATHI	039 – 299 6900	thandi.ntshangase@kzndsr.gov.za
10	UTHUKELA	036 – 631 4727	eneil.meyer@kzndsr.gov.za
11	ZULULAND	035 – 874 6406	bonisiwe.thabethe@kzndsr.gov.za

OTHER RESOURCES & LINKS

The KZN Department of Health Intranet is a key resource for provincial guidelines, documents, circulars and general information on tools available from other Programme. A list of useful external resources is provided below.

2. Early Childhood Development Nutrition Guidelines

http://ilifalabantwana.co.za/wp-content/uploads/2016/12/Nutrition-guidelines-for-ECD-centres_Draft-2_30-September-2016.pdf

3. Safe preparation, storage and handling of powdered Infant Formula Guidelines.

http://www.who.int/foodsafety/publications/micro/pif_guidelines.pdf

4. Paediatric Obesity—Assessment, Treatment, and Prevention: An Endocrine Society Clinical Practice Guideline

<https://watermark.silverchair.com/jc.2016.pdf>

5. Cerebral Palsy Development of a functional eating and drinking ability classification system for

individuals with cerebral palsy •

<http://eprints.brighton.ac.uk/12147/1/thesis%2030.1.14-signed.pdf>

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11. KZN Department of Health 2015. **KZN Guidelines on the Integrated Management of Acute Malnutrition (IMAM)**
12. KZN Department of Health 2017. **Severe Acute Malnutrition Support Visit Report King Edward Hospital** Nireshnee.reddy@kznhealth.gov.za
13. KZN Department of Health 2017. **RK Khan Hospital: Fortication of Breastmilk Guidelines.** Kate.nuns@kznhealth.gov.za
14. MAM Task Force. Moderate acute malnutrition: a decision tool for emergencies. Geneva: IASC Global Nutrition Cluster, 2017
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25. Ververs M (2011). Identification of acute malnutrition, adverse birth outcomes and nutritional care for pregnant, lactating women in emergencies or protracted crises. **Medecins Sans Frontieres.**
26. WHO 2009. **Guidelines for an integrated approach to the nutritional care of HIV infected children (6 months -14 years).**
27. WHO 2013. **Updates on the management of severe acute malnutrition in infants and children.**
28. WHO (2011). **Guidelines on optimal feeding of low birth-weight infants in low- and middle-income countries.**
29. WHO (2017). **Assessing and managing children at primary health-care facilities to prevent overweight and obesity in the context of the double burden of malnutrition.**
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APPENDICES



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HEAD OFFICE

Natalia Building, 330 Langalibalele Street, Pietermaritzburg, 3201
Tel: 033 395 2111 | Fax: 033 342 0429 | Web: www.kznhealth.gov.za



Facebook - KwaZulu-Natal Department of Health



Twitter - @kznhealth



Instagram - kznhealth

Appendix 1: Simplified Weight for Height in Children 6-23 Months

[WHO 2006 Child Growth Standards] Length is measured for children under 2 years or less than 87 cm height. For children 2 years or older or 87 cm height or greater, height is measured. Recumbent length is, on average, 0.7 cm greater than standing height; although the difference is of no importance to individual children, a correction may be made by subtracting 0.7 cm from all lengths above 86.9 cm if standing height cannot be measured.

Boys' weight (kg)				Length (cm)	Girls' weight (kg)			
-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD
1.9	2.0	2.2	2.4	45	2.5	2.3	2.1	1.9
2.0	2.2	2.4	2.6	46	2.6	2.4	2.2	2.0
2.1	2.3	2.5	2.8	47	2.8	2.6	2.4	2.2
2.3	2.5	2.7	2.9	48	3.0	2.7	2.5	2.3
2.4	2.6	2.9	3.1	49	3.2	2.9	2.6	2.4
2.6	2.8	3.0	3.3	50	3.4	3.1	2.8	2.6
2.7	3.0	3.2	3.5	51	3.6	3.3	3.0	2.8
2.9	3.2	3.5	3.8	52	3.8	3.5	3.2	2.9
3.1	3.4	3.7	4.0	53	4.0	3.7	3.4	3.1
3.3	3.6	3.9	4.3	54	4.3	3.9	3.6	3.3
3.6	3.8	4.2	4.5	55	4.5	4.2	3.8	3.5
3.8	4.1	4.4	4.8	56	4.8	4.4	4.0	3.7
4.0	4.3	4.7	5.1	57	5.1	4.6	4.3	3.9
4.3	4.6	5.0	5.4	58	5.4	4.9	4.5	4.1
4.5	4.8	5.3	5.7	59	5.6	5.1	4.7	4.3
4.7	5.1	5.5	6.0	60	5.9	5.4	4.9	4.5
4.9	5.3	5.8	6.3	61	6.1	5.6	5.1	4.7
5.1	5.6	6.0	6.5	62	6.4	5.8	5.3	4.9
5.3	5.8	6.2	6.8	63	6.6	6.0	5.5	5.1
5.5	6.0	6.5	7.0	64	6.9	6.3	5.7	5.3
5.7	6.2	6.7	7.3	65	7.1	6.5	5.9	5.5
5.9	6.4	6.9	7.5	66	7.3	6.7	6.1	5.6
6.1	6.6	7.1	7.7	67	7.5	6.9	6.3	5.8
6.3	6.8	7.3	8.0	68	7.7	7.1	6.5	6.0
6.5	7.0	7.6	8.2	69	8.0	7.3	6.7	6.1
6.6	7.2	7.8	8.4	70	8.2	7.5	6.9	6.3
6.8	7.4	8.0	8.6	71	8.4	7.7	7.0	6.5
7.0	7.6	8.2	8.9	72	8.6	7.8	7.2	6.6
7.2	7.7	8.4	9.1	73	8.8	8.0	7.4	6.8
7.3	7.9	8.6	9.3	74	9.0	8.2	7.5	6.9
7.5	8.1	8.8	9.5	75	9.1	8.4	7.7	7.1
7.6	8.3	8.9	9.7	76	9.3	8.5	7.8	7.2
7.8	8.4	9.1	9.9	77	9.5	8.7	8.0	7.4
7.9	8.6	9.3	10.1	78	9.7	8.9	8.2	7.5
8.1	8.7	9.5	10.3	79	9.9	9.1	8.3	7.7
8.2	8.9	9.6	10.4	80	10.1	9.2	8.5	7.8
8.4	9.1	9.8	10.6	81	10.3	9.4	8.7	8.0
8.5	9.2	10.0	10.8	82	10.5	9.6	8.8	8.1
8.7	9.4	10.2	11.0	83	10.7	9.8	9.0	8.3
8.9	9.6	10.4	11.3	84	11.0	10.1	9.2	8.5
9.1	9.8	10.6	11.5	85	11.2	10.3	9.4	8.7
9.3	10.0	10.8	11.7	86	11.5	10.5	9.7	8.9
9.5	10.2	11.1	12.0	87	11.7	10.7	9.9	9.1
9.7	10.5	11.3	12.2	88	12.0	11.0	10.1	9.3
9.9	10.7	11.5	12.5	89	12.2	11.2	10.3	9.5
10.1	10.9	11.8	12.7	90	12.5	11.4	10.5	9.7
10.3	11.1	12.0	13.0	91	12.7	11.7	10.7	9.9
10.5	11.3	12.2	13.2	92	13.0	11.9	10.9	10.1
10.7	11.5	12.4	13.4	93	13.2	12.1	11.1	10.2
10.8	11.7	12.6	13.7	94	13.5	12.3	11.3	10.4
11.0	11.9	12.8	13.9	95	13.7	12.6	11.5	10.6
11.2	12.1	13.1	14.1	96	14.0	12.8	11.7	10.8
11.4	12.3	13.3	14.4	97	14.2	13.0	12.0	11.0
11.6	12.5	13.5	14.6	98	14.5	13.3	12.2	11.2
11.8	12.7	13.7	14.9	99	14.8	13.5	12.4	11.4
12.0	12.9	14.0	15.2	100	15.0	13.7	12.6	11.6

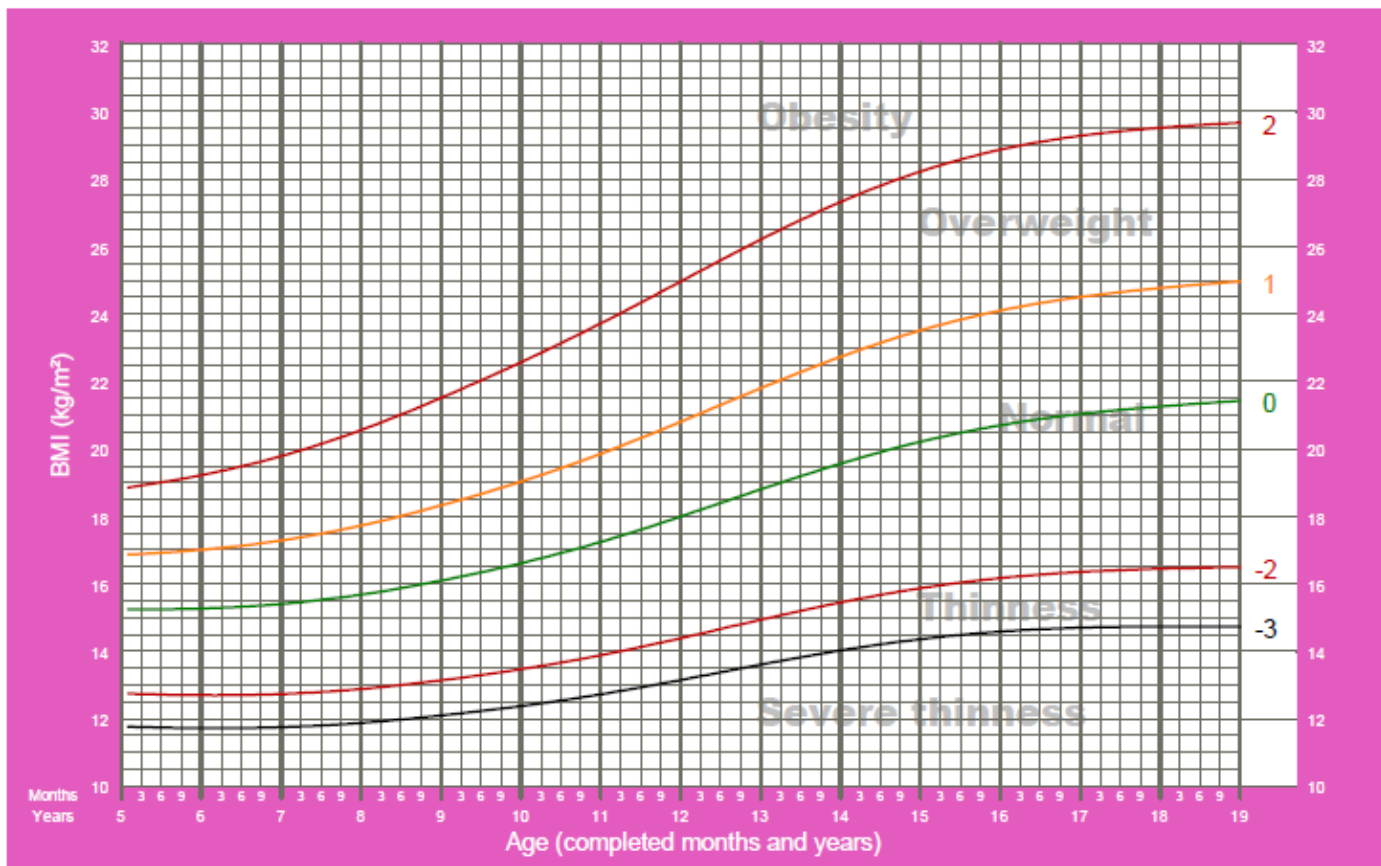
Appendix 2: Weight-for-Height Look-Up Table Children 24-59 Months

[WHO 2006 Child Growth Standards] For children 2 years or older or 87 cm height or more, height is measured. Recumbent length is, on average, 0.7 cm greater than standing height; although the difference is of no importance to individual children, a correction may be made by subtracting 0.7 cm from all lengths greater than 86.9 cm if standing height cannot be measured.

Boys' weight (kg)				Length (cm)	Girls' weight (kg)			
-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD
5.9	6.3	6.9	7.4	65	7.2	6.6	6.1	5.6
6.1	6.5	7.1	7.7	66	7.5	6.8	6.3	5.8
6.2	6.7	7.3	7.9	67	7.7	7.0	6.4	5.9
6.4	6.9	7.5	8.1	68	7.9	7.2	6.6	6.1
6.6	7.1	7.7	8.4	69	8.1	7.4	6.8	6.3
6.8	7.3	7.9	8.6	70	8.3	7.6	7.0	6.4
6.9	7.5	8.1	8.8	71	8.5	7.8	7.1	6.6
7.1	7.7	8.3	9.0	72	8.7	8.0	7.3	6.7
7.3	7.9	8.5	9.2	73	8.9	8.1	7.5	6.9
7.4	8.0	8.7	9.4	74	9.1	8.3	7.6	7.0
7.6	8.2	8.9	9.6	75	9.3	8.5	7.8	7.2
7.7	8.4	9.1	9.8	76	9.5	8.7	8.0	7.3
7.9	8.5	9.2	10.0	77	9.6	8.8	8.1	7.5
8.0	8.7	9.4	10.2	78	9.8	9.0	8.3	7.6
8.2	8.8	9.6	10.4	79	10.0	9.2	8.4	7.8
8.3	9.0	9.7	10.6	80	10.2	9.4	8.6	7.9
8.5	9.2	9.9	10.8	81	10.4	9.6	8.8	8.1
8.7	9.3	10.1	11.0	82	10.7	9.8	9.0	8.3
8.8	9.5	10.3	11.2	83	10.9	10.0	9.2	8.5
9.0	9.7	10.5	11.4	84	11.1	10.2	9.4	8.6
9.2	10.0	10.8	11.7	85	11.4	10.4	9.6	8.8
9.4	10.2	11.0	11.9	86	11.6	10.7	9.8	9.0
9.6	10.4	11.2	12.2	87	11.9	10.9	10.0	9.2
9.8	10.6	11.5	12.4	88	12.1	11.1	10.2	9.4
10.0	10.8	11.7	12.6	89	12.4	11.4	10.4	9.6
10.2	11.0	11.9	12.9	90	12.6	11.6	10.6	9.8
10.4	11.2	12.1	13.1	91	12.9	11.8	10.9	10.0
10.6	11.4	12.3	13.4	92	13.1	12.0	11.1	10.2
10.8	11.6	12.6	13.6	93	13.4	12.3	11.3	10.4
11.0	11.8	12.8	13.8	94	13.6	12.5	11.5	10.6
11.1	12.0	13.0	14.1	95	13.9	12.7	11.7	10.8
11.3	12.2	13.2	14.3	96	14.1	12.9	11.9	10.9
11.5	12.4	13.4	14.6	97	14.4	13.2	12.1	11.1
11.7	12.6	13.7	14.8	98	14.7	13.4	12.3	11.3
11.9	12.9	13.9	15.1	99	14.9	13.7	12.5	11.5
12.1	13.1	14.2	15.4	100	15.2	13.9	12.8	11.7
12.3	13.3	14.4	15.6	101	15.5	14.2	13.0	12.0
12.5	13.6	14.7	15.9	102	15.8	14.5	13.3	12.2
12.8	13.8	14.9	16.2	103	16.1	14.7	13.5	12.4
13.0	14.0	15.2	16.5	104	16.4	15.0	13.8	12.6
13.2	14.3	15.5	16.8	105	16.8	15.3	14.0	12.9
13.4	14.5	15.8	17.2	106	17.1	15.6	14.3	13.1
13.7	14.8	16.1	17.5	107	17.5	15.9	14.6	13.4
13.9	15.1	16.4	17.8	108	17.8	16.3	14.9	13.7
14.1	15.3	16.7	18.2	109	18.2	16.6	15.2	13.9
14.4	15.6	17.0	18.5	110	18.6	17.0	15.5	14.2
14.6	15.9	17.3	18.9	111	19.0	17.3	15.8	14.5
14.9	16.2	17.6	19.2	112	19.4	17.7	16.2	14.8
15.2	16.5	18.0	19.6	113	19.8	18.0	16.5	15.1
15.4	16.8	18.3	20.0	114	20.2	18.4	16.8	15.4
15.7	17.1	18.6	20.4	115	20.7	18.8	17.2	15.7
16.0	17.4	19.0	20.8	116	21.1	19.2	17.5	16.0
16.2	17.7	19.3	21.2	117	21.5	19.6	17.8	16.3
16.5	18.0	19.7	21.6	118	22.0	19.9	18.2	16.6
16.8	18.3	20.0	22.0	119	22.4	20.3	18.5	16.9
17.1	18.6	20.4	22.4	120	22.8	20.7	18.9	17.3

BMI-for-age GIRLS

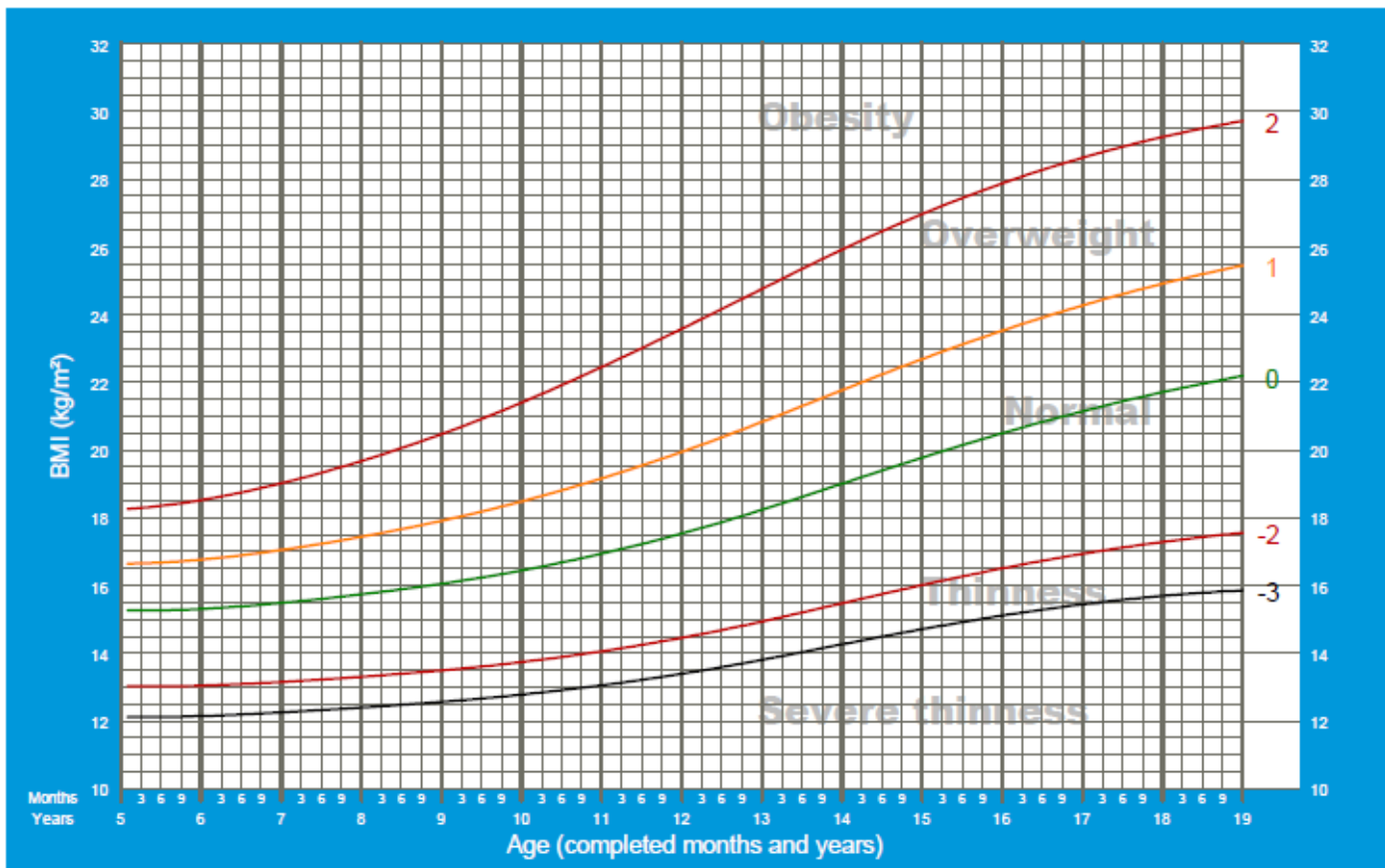
5 to 19 years (z-scores)



2007 WHO Reference

BMI-for-age BOYS

5 to 19 years (z-scores)



2007 WHO Reference

Appendix 5: Summary of Nutritional Classification for all age groups

Age group	SAM	MAM	Not Growing well	Normal	Overweight	Obese
6-59 months	MUAC<11.5 cm WFH/L <-3 SD	MUAC>11.5-12.5cm WFH/L -2 and -3 SD	Losing weight Growth curve flattening over 2-3 months	MUAC>12.5cm WFH/L -2 and +2 SD	WFH/L +2 and +3 SD	WFH/L >+3 SD
5-9 years	MUAC<13.5cm BMI/Age<-3 Z score	MUAC13.5-14.5cm BMI/Age-2 and -3 Z score		MUAC>14.5cm BMI/Age+2 and +1 Z score		BMI/Age +2 Z score
10-14 years	MUAC <16cm BMI/Age<-3 Z score	MUAC <16-18.5cm BMI/Age -2 and -3 Z score		MUAC >18.5cm BMI/Age -2 and +1 Z score	BMI/Age + and +2 Z scores	
15-18 years	MUAC <21cm BMI/Age<-3 Z score	MUAC 21-23cm BMI/Age -2 and -3 Z score		MUAC >23cm BMI/Age -2 and +1 Z score		
Adults	MUAC <21 cm BMI <16kg.m2	MUAC 21-23 cm BMI 16-18.4kg.m2		MUAC >23 cm BMI 18.5-24.9kg.m2	BMI 25-29.9kg/m2	BMI>30kg/m2
Pregnant and women 6 months post-partum	MUAC <21cm	MUAC 21-23cm		MUAC>23-30cm	MUAC>30cm	

Appendix 6: Monitoring Neonatal Growth

Careful monitoring of a baby's weight is one of the cornerstones of quality care and is essential for good management

Why weigh babies?

It is important to weigh babies regularly to:

- ✓ ensure they have gained weight sufficiently after birth
- ✓ to determine fluid requirements
- ✓ accurately calculate medication
- ✓ detect abnormal weight gain eg cardiac or renal conditions

When to weigh babies:

At least daily, while in the neonatal unit

Babies should be weighed at the same time each day before a feed (preferably prior to being seen by MO).
if in the ward with mother, can be done 3 times / week

How to weigh babies:

The nurse should be shown how to use the nursery scale as all scales are different:

collect all relevant equipment

before weighing each baby, chlorhexidine tincture should be used to wipe the scale to prevent cross-infection
preferably a blanket /cloth should be placed on the scale first and then zero the scale. This helps prevent conductive heat losses.

baby's clothes and nappy should be removed

baby should be weighed and the weight charted on baby's daily weight chart (Form: "Weight chart")

Choose the correct weight chart for the baby's weight

It is crucial is crucial that baby's overall growth is monitored weekly on a percentile graph to ensure his growth is

Monitoring growth:

Once baby's gestational age has been assessed after birth his birth weight, length and circumference of head (COH) must be plotted on the Intergrowth- 21st International Post Natal Growth Standards for Preterm Infants or International standards for size at birth (Term) chart. This establishes a starting point for further growth monitoring. Thereafter plot the length, weight and COH weekly on the Growth chart- it should follow the 50th percentile
Term babies lose 5- 10% and prems 10-15% of their body weight within the first 3 days of life. After the first three days, a term baby should gain between 150 - 200g per week. Preterm babies should start to gain weight from day 5 - 7 and then gain 1% per kg body weight per day (eg 10g per day for 1000g baby) Term babies should regain birthweight by 5-10days and preterms may take up to 14 days

If baby's weight remains static/decreases for >3days the dietitian should be consulted and baby's fluids and feeds and feeding method carefully reviewed.

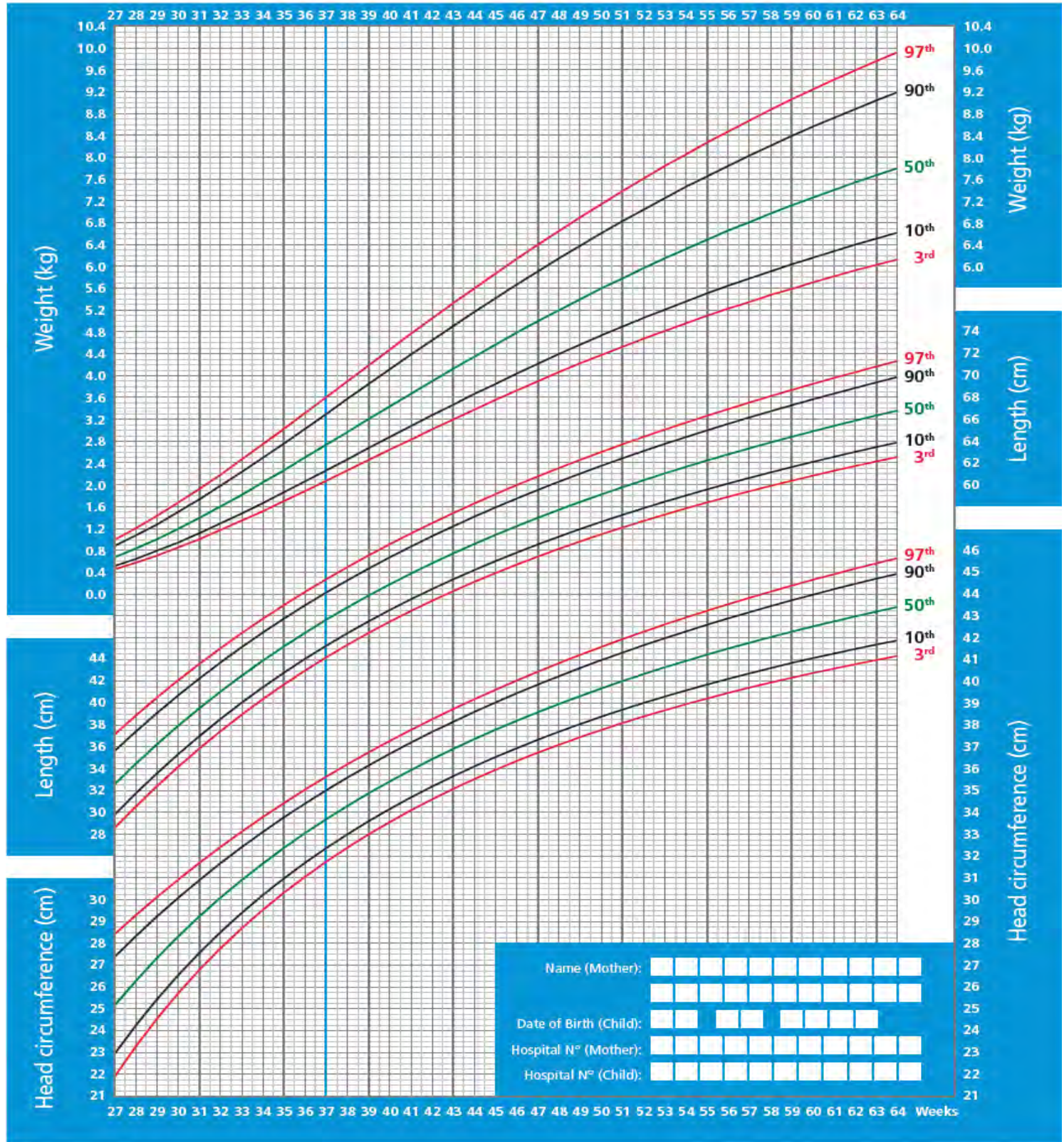
Ensure mother is given a Road to Health Chart on discharge and is referred to the nearest well baby clinic for ongoing monitoring.

Appendix 7: International postnatal growth standards for preterm infants (boys)



International Postnatal Growth Standards for Preterm Infants (Boys)

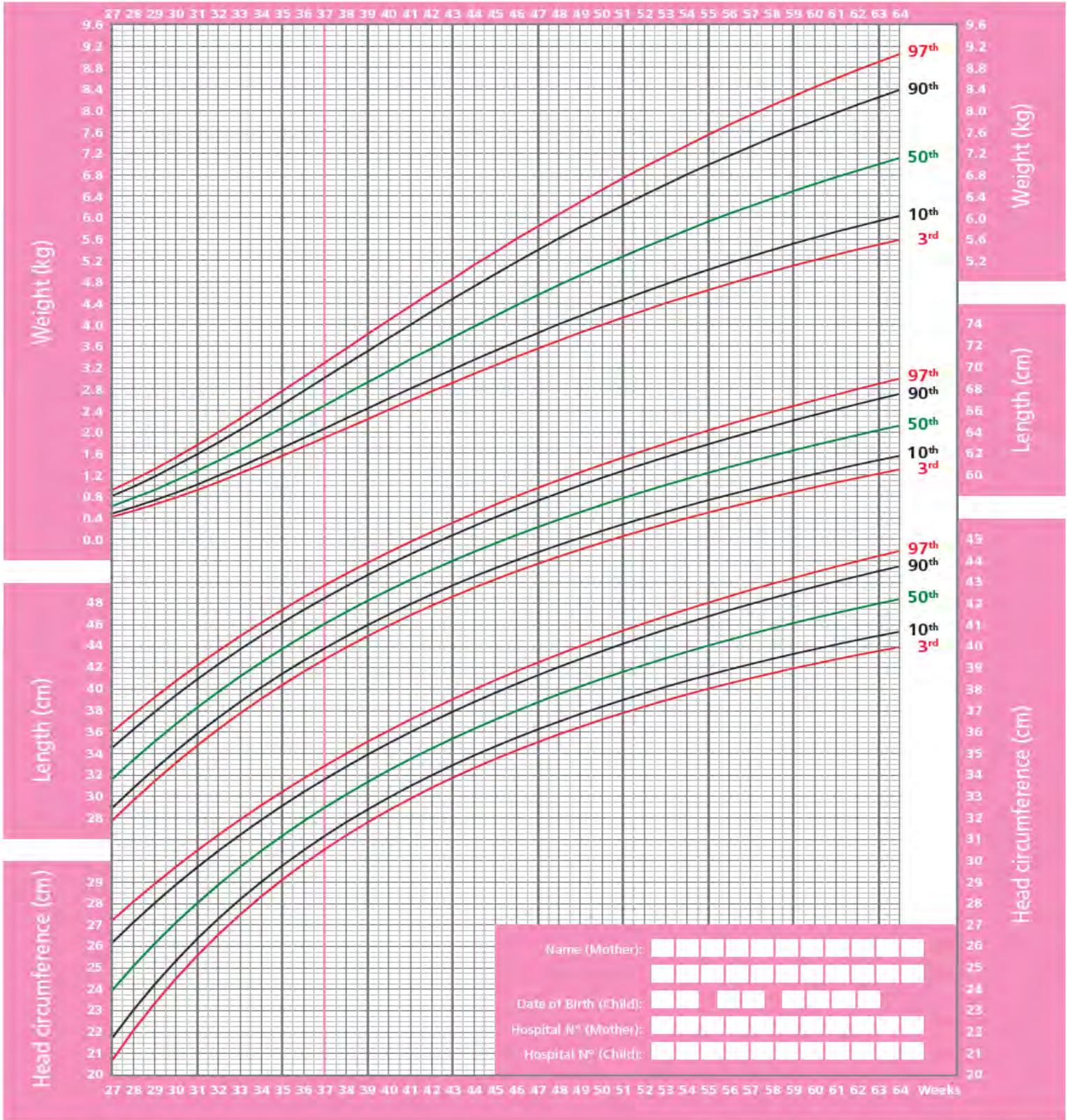
INTERGROWTH-21st




Appendix 8: International Postnatal Growth Standards for girls



International Postnatal Growth Standards for Preterm Infants (Girls)




Appendix 9: Neonatal fluids and feeds

 health Department Health PROVINCE OF KWAZULU-NATAL	NEONATAL FLUIDS AND FEEDS	
	The purpose of this SOP is to ensure an appropriate and acceptable standard of care. It is aimed at nurses and junior/inexperienced medical practitioners. Individual critical clinical judgment should always be used. It does not replace individualized expert management.	
Name:		IP Number:

ADMISSION (DAY 1):		✓
Step 1: Select total required daily fluids.		
Preterm < 1000g	100 ml/kg/day	
Preterm > 1000g	80 ml/kg/day	
Term	60 ml/kg/day	
Step 2: Assess need for Increased / Decreased fluids.		
Add more fluid than Step 1 if under a radiant warmer or has a gastroschisis (open abdominal wound).		
If baby is covered with a plastic blanket only give half of the following fluid.		
Preterm	20 ml/kg/day	
Term	10 ml/kg/day	
Subtract fluid from Step 1 if baby has HIE (Restrict to $\frac{3}{4}$ total fluids). Divide Step 1 by 4 and multiply by 3.		
New required Total:		ml/kg/day
Step 3: Calculate actual daily fluids to be administered according to birth weight.		
Multiply Step1/Step 2 by birth weight.		Total daily fluid volume:
		ml/day
Step 4: Calculate feeds.		
If mother on 2 nd /3 rd line antiretrovirals for 3mths and viral load remains >1000copies-do not breastfeed		
If baby is sick or distressed keep NPO		>1000g start breast milk feeds at 20ml/kg/day
>1500g and well-start full feeds		<1000g start colostrum at 10ml/kg/day
1. Multiply by birth weight	Total daily feed volume:	
	mls/day	
2. Divide total feed volume by 8	3hrly feed volume:	
	mls/3hrly	
Step 5: Calculate IV fluids		
1. Subtract Total feeds (Step 4) from total daily volume (Step 3)	Maintenance fluid volume:	
	mls/day	
2. Divide maintenance fluid by 24	IV Fluid rate:	
	ml/hr	
Sign:		Print:
Date:		Time:

DAY 2		✓
Step 1: Select total required daily fluids. (At least 12 hrs must have passed since birth)		
Preterm < 1000g	120 ml/kg/day	
Preterm > 1000g	100 ml/kg/day	
Term	80 ml/kg/day	
Step 2: Assess need for Increased / Decreased fluids.		
Add more fluid than Step 1 if under a radiant warmer or has a gastroschisis (open abdominal wound).		
If baby is covered with a plastic blanket only give half of the following fluid.		
Preterm	20ml/kg/day	
Term	10ml/kg/day	
Subtract fluid from Step 1 if baby has HIE (Restrict to $\frac{3}{4}$ total fluids). Divide Step 1 by 4 and multiply by 3.		
New required Total:		ml/kg/day
Step 3: Calculate actual daily fluids to be administered according to birth weight.		
Multiply Step1/Step 2 by birth weight.		Total daily fluid volume: ml/day
Step 4: Calculate feeds.		
If baby has decreased/no bowel sounds keep NPO	>1000g start/increase EBM feeds by 20ml/kg/day	
>1500g and well continue full feeds	<1000g start/increase EBM by 10ml/kg/day	
1. Increase previous day's feed volume	Required daily feed volume:	ml/kg/day
2. Multiply by birth weight	Total daily feed volume:	mls/day
3. Divide total feed volume by 8	3hrly feed volume:	mls/3hrly
Step 5: Calculate IV fluids		
1. Subtract Total feeds (Step 4) from total daily volume (Step 3)		Maintenance fluid volume: mls/day
2. Divide maintenance fluid by 24		IV Fluid rate: ml/hr
Sign:	Print:	
Date:	Time:	

 <p>health Department: Health PROVINCE OF KWAZULU-NATAL</p>	NEONATAL STANDARD OPERATING PROCEDURE	
	FLUIDS AND FEEDS	
The purpose of this SOP is to ensure an appropriate and acceptable standard of care. It is aimed at nurses and junior/inexperienced medical practitioners. Individual critical clinical judgment should always be used. It does not replace individualized expert management.		
Name:	IP Number:	

DAY 3:			✓
Step 1: Select total required daily fluids.			
Preterm < 1000g	140 ml/kg/day		
Preterm > 1000g	120 ml/kg/day		
Term	100 ml/kg/day		
Step 2: Assess need for Increased / Decreased fluids.			
Add more fluid than Step 1 if under a radiant warmer or has a gastroschisis (open abdominal wound).			
If baby is covered with a plastic blanket only give half of the following fluid.			
Preterm	20 ml/kg/day		
Term	10 ml/kg/day		
Subtract fluid from Step 1 if baby has HIE (Restrict to $\frac{3}{4}$ total fluids). Divide Step 1 by 4 and multiply by 3.			
New required Total:			ml/kg/day
Step 3: Calculate actual daily fluids to be administered according to birth weight.			
Multiply Step1/Step 2 by birth weight.		Total daily fluid volume:	
		ml/day	
Step 4: Calculate feeds.			
If baby has decreased/no bowel sounds keep NPO		>1000g start /increase EBM feeds by 20ml/kg/day	
>1500g and well- continue full feeds		<1000g start /increase EBM feeds by 10ml/kg/day	
1. Increase previous day's feed volume	Required daily feed volume:		ml/kg/day
2. Multiply by birth weight	Total daily feed volume:		mls/day
3. Divide total feed volume by 8	3hrly feed volume:		mls/3hrly
Step 5: Calculate IV fluids			
1. Subtract total feeds (Step 4) from total daily volume (Step 3)		Maintenance fluid volume:	
		mls/day	
2. Divide maintenance fluid by 24		IV Fluid rate:	
		ml/hr	
Sign:		Print:	
Date:		Time:	
DAY 4			✓
Step 1: Select total required daily fluids.			
Preterm < 1000g	160 ml/kg/day		
Preterm > 1000g	140 ml/kg/day		
Term	120 ml/kg/day		
Step 2: Assess need for Increased / Decreased fluids.			
Add more fluid than Step 1 if under a radiant warmer. Not required for phototherapy.			
If baby is covered with a plastic blanket only give half of the following fluid.			
Preterm	20ml/kg/day		
Term	10ml/kg/day		
Subtract fluid from Step 1 if baby has HIE/ PDA/ Oedema (Restrict to $\frac{3}{4}$ total fluids).			
If urinary output has improved (>6 wet nappies or 1ml/kg/hr) stop restricting fluid for HIE			
New required Total:			ml/kg/day
Step 3: Calculate actual daily fluids to be administered according to weight.			
Multiply Step1/Step 2 by biggest weight (birth/daily weight)		Total daily fluid volume:	
		ml/day	
Step 4: Calculate feeds.			
Feeds must be commenced or TPN given		>1000g start/increase EBM feeds by 20ml/kg/day	
>1500g and well continue full feeds		<1000g start/increase EBM by 10ml/kg/day	
1. Increase previous day's feed volume	Required daily feed volume:		ml/kg/day
2. Multiply by biggest weight	Total daily feed volume:		mls/day
3. Divide total feed volume by 8	3hrly feed volume:		mls/3hrly
Step 5: Calculate IV fluids			
1. Subtract total feeds (Step 4) from Total daily volume (Step 3)		Maintenance fluid volume:	
		mls/day	
2. Divide maintenance fluid by 24		IV Fluid rate:	
		ml/hr	
Sign:		Print:	
Date:		Time:	



health
Department:
Health
PROVINCE OF KWAZULU-NATAL

NEONATAL STANDARD OPERATING PROCEDURE FLUIDS AND FEEDS

The purpose of this SOP is to ensure an appropriate and acceptable standard of care. It is aimed at nurses and junior/inexperienced medical practitioners. Individual critical clinical judgment should always be used. It does not replace individualized expert management.

Name:

IP Number:

DAY 5

✓

Step 1: Select total required daily fluids.

Preterm < 1000g	180 ml/kg/day
Preterm > 1000g	160 ml/kg/day
Term	140 ml/kg/day

Step 2: Assess need for Increased / Decreased fluids.

Add more fluid than Step 1 if under a radiant warmer. Not required for phototherapy.

If baby is covered with a plastic blanket only give half of the following fluid.

Preterm	20ml/kg/day
Term	10ml/kg/day

Subtract fluid from Step 1 if baby has HIE/PDA/ Oedema (Restrict to $\frac{3}{4}$ total fluids)

If urinary output has improved (>6 wet nappies or 1ml/kg/hr) stop restricting fluid for HIE/oedema.

New required Total: ml/kg/day

Step 3: Calculate actual daily fluids to be administered according to weight.

Multiply Step1/Step 2 by biggest weight (birth/daily weight) **Total daily fluid volume:** ml/day

Step 4: Calculate feeds.

Increase feeds daily	>1000g increase EBM feeds by 20ml/kg/day
>1500g and well continue full feeds	<1000g increase EBM by 10ml/kg/day

1. Increase previous day's volume	Required daily feed volume:	ml/kg/day
2. Multiply by biggest weight	Total daily feed volume:	mls/day
3. Divide total feed volume by 8	3hrly feed volume:	mls/3hrly

Step 5: Calculate IV fluids

1. Subtract total feeds (Step 4) from Total daily volume (Step 3)	Maintenance fluid volume:	mls/day
2. Divide maintenance fluid by 24	IV Fluid rate:	ml/hr

Sign:	Print:
Date:	Time:

DAY 6		✓
Step 1: Select total required daily fluids.		
Preterm < 1000g	180 ml/kg/day	
Preterm > 1000g	180 ml/kg/day	
Term	160 ml/kg/day	
Step 2: Assess need for Increased / Decreased fluids.		
Add more fluid than Step 1 if under a radiant warmer. Not required for phototherapy.		
If baby is covered with a plastic blanket only give half of the following fluid.		
Preterm	20ml/kg/day	
Term	10ml/kg/day	
Subtract fluid from Step 1 if baby has a PDA/ Oedema (Restrict to ¾ total fluids).		
Consult referral hospital if baby has persistent oedema or PDA not closing		
New required Total:		ml/kg/day
Step 3: Calculate actual daily fluids to be administered according to weight.		
Multiply Step1/Step 2 by biggest weight (birth/daily weight)	Total daily fluid volume:	ml/day
Step 4: Calculate feeds.		
Increase feeds daily	>1000g increase EBM feeds by 20ml/kg/day	
>1500g and well continue full feeds	<1000g increase EBM by 10ml/kg/day	
1. Increase previous day's volume	Required daily feed volume:	ml/kg/day
2. Multiply by biggest weight	Total daily feed volume:	mls/day
3. Divide total feed volume by 8	3hrly feed volume:	mls/3hrly
Step 5: Calculate IV fluids		
1. Subtract total feeds (Step 4) from Total daily volume (Step 3)	Maintenance fluid volume:	mls/day
2. Divide maintenance fluid by 24	IV Fluid rate:	ml/hr
Sign:	Print:	
Date:	Time:	



health
Department:
Health
PROVINCE OF KWAZULU-NATAL

NEONATAL STANDARD OPERATING PROCEDURE

FLUIDS AND FEEDS

The purpose of this SOP is to ensure an appropriate and acceptable standard of care. It is aimed at nurses and junior/inexperienced medical practitioners. Individual critical clinical judgment should always be used. It does not replace individualized expert management.

Name:		IP Number:	
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DAY 7			✓
Step 1: Select total required daily fluids.			
Preterm < 1000g	180 ml/kg/day		
Preterm > 1000g	180 ml/kg/day		
Term	160-180 ml/kg/day		
Step 2: Assess need for increased / Decreased fluids.			
Add more fluid than Step 1 if under a radiant warmer. Not required for phototherapy.			
If baby is covered with a plastic blanket only give half of the following fluid.			
Preterm	20ml/kg/day		
Term	10ml/kg/day		
Subtract If urinary output has improved (>6 wet nappies or 1ml/kg/hr) stop restricting fluid for HIE/oedema.			
Consult referral hospital if baby has persistent oedema or PDA not closing			
		New required Total:	ml/kg/day
Step 3: Calculate actual daily fluids to be administered according to weight.			
Multiply Step1/Step 2 by biggest weight (birth/daily weight)		Total daily fluid volume:	ml/day
Step 4: Calculate feeds.			
Increase feeds daily		>1000g increase EBM feeds by 20ml/kg/day	
>1500g and well continue full feeds		<1000g increase EBM by 10ml/kg/day	
4. Increase previous day's volume		Required daily feed volume:	ml/kg/day
5. Multiply by biggest weight		Total daily feed volume:	mls/day
6. Divide total feed volume by 8		3hrly feed volume:	mls/3hrly
Step 5: Calculate IV fluids			
3. Subtract total feeds (Step 4) from Total daily volume (Step 3)		Maintenance fluid volume:	mls/day
4. Divide maintenance fluid by 24		IV Fluid rate:	ml/hr
Sign:		Print:	
Date:		Time:	



Ongoing		✓
Step 1: Select total required daily fluids.		
Preterm < 1000g	180 ml/kg/day	
Preterm > 1000g	180 ml/kg/day	
Term	160-180 ml/kg/day	
1. Do not exceed 200ml/kg/day without dietitian and consultant input		
Step 2: Assess need for Increased / Decreased fluids.		
2. No further fluid increases needed as the skin is fully keratinized		
3. Only restrict fluid after discussion with referral hospital		
Step 3: Calculate actual daily fluids to be administered according to weight.		
4. Multiply Step1/Step 2 by biggest weight (birth/daily weight)		
5. If baby fails to gain weight or loses weight for 3 days consult dietitian.		
Step 4: Calculate feeds.		
6. Increase all babies' (including <1000g) feeds daily by 20ml/kg/day but do not exceed 200ml/kg/day		
7. Add fortification (FM 85) after consultation with dietitian, if baby not achieving at least 1% weight gain/day despite adequate fluid volumes and at least 120ml/kg feeds.		
Step 5: Calculate IV fluids		
8. Aim to have baby on full feeds by Day 8-10. No IV fluids.		
Sign:		Print:
Date:		Time:
Authorized By:		Dr N. McKerrow-KZN Provincial Paediatrician
Date:	30 March 2016	Review Date: 30 March 2019
Abbreviations: IP= Inpatient; SOP= Standard operating procedure; g= grams; ml=milliliters; kg=kilogram; HIE=Hypoxic ischaemic encephalopathy; hr/hrly=hour/ly; IV= Intravenous; NPO= Nil per os; PDA= Patent ductus arteriosus		



Appendix 10: Feeding the sick premature baby

<u>Breast feeding / Breast milk</u> must be encouraged at all times
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When to start?

- If baby has good bowel sounds, no blood or protein in the urine, is in a stable condition and is >1500g, full feeds should be commenced on Day 1.
- If baby has good bowel sounds, no blood or protein in the urine and is in a stable condition commence feeds in addition to IV fluids from day 2.
- Do not commence early feeds in the presence of severe sepsis or administration of inotropes
- In asphyxiated neonates keep nil per os for 24 hrs. Do not commence feeds in the presence of decreased / absent bowel sounds and significant blood or protein in the urine-commence slowly by day 4. Observe closely for any signs of feeding intolerance.
- NB. Feeds must be commenced by day 4 at the latest. If they cannot be commenced for any reason TPN must be administered

What to feed?

- Breast feeding must be encouraged at all times. Appropriate counselling of the mother to determine whether she meets the six specific conditions to safely replacement feed must be given if breastfeeding is contraindicated or if the mother decides not to breastfeed.
- Expressed breast milk or pasteurised human donor milk must be given to all sick or premature infants <1500g (See pasteurised milk policy) for at least the first 14 days, as per the KZN Provincial Guidelines for the Establishment and Operation of Human Milk Banks in KZN.
- Encourage mother to commence expressing within 3 hrs of birth and provide this colostrum to the baby.

What volume to feed:

- >1000g/ 28weeks -Start with 20ml/kg/per day divided into 3hrly feeds. Increase by 20ml/kg/day to max 160ml/kg/day
- <1000g/28weeks- Start with 10ml/kg/per day divided into 3hrly feeds. Increase by 10ml/kg/day for 1st 7days then increase by 20ml/kg/day to max 160ml/kg/day
- Do not exceed 180ml/kg/day unless there are clear clinical indications eg fluid deficit or poor weight gain despite full feeds in a baby > 10days old. However do not exceed 220ml. This must be in consultation with a dietitian or regional/tertiary referral centre.

How to feed?

- Babies less than 1500g/ 34 weeks or with respiratory compromise should be fed by gastric tube.
- Routinely in a stable baby the nasogastric route is preferred in order to prevent the development of oral aversion. Babies can only breath through their nose so, in order to prevent further obstruction, if baby has severe distress or is on nasal CPAP use orogastric route.(Ventilated babies should have nasogastric tubes)
- Bolus feeds (3hrly) are recommended as they improve intestinal development and nutrient partitioning due to increased feed fasting hormonal concentration. Evidence shows that continuous feeds lead to increased feeding intolerance and decreased weight gain and should therefore be reserved for babies with significant gastro oesophageal reflux or post GIT surgery

Fortification:

- Nutrition and weight gain is much improved when breast milk is fortified. If baby fails to gain 15g/day for >1week (despite full feeds with close support and supervision and in the absence of clinical/medical reasons for poor growth) fortification should be considered (in consultation with a dietitian)
- NB FM 85 may only be commenced once baby is on 100ml /kg/day or more feeds.
- If the baby is well, unexposed (or exposed but receiving pasteurised breast milk) initially add **FM85** one scoop/sachet per 25ml feed every 2nd feed and if tolerated well for 24 hours increase to every feed. FM85 sachets/scoops must only be added per 25ml or more of EBM (e.g. if there is 40ml of EBM only one sachet should be added. However if there is 50ml of EBM then two sachets can be added).
- **NB** – FM85 may increase the risk of HIV transmission and NEC and should be therefore only used with close monitoring and caution.

Management of feeding intolerance:

- Aspirate stomach contents prior to each feed. This should be tested on pH testing paper (pH <5.5) or litmus. This confirms the placement of the NG tube. However X-Ray is considered the gold standard for confirming NG placement. If return is blood or bile stained do not return but keep for doctor. Aspirating stomach contents have not been found to be an accurate way of establishing feeding tolerance but in a low resource setting may give the clinician some indication of feeding tolerance.
 - ✓ < 25% -return aspirate and give full feed
 - ✓ 25-50%-return aspirate and give difference in feed
 - ✓ >50% - return aspirate & omit feed. If large aspirate persists with following feed assess baby for signs of NEC
- If no evidence of NEC: reduce feed to previous days volume and continue feeding. If baby is not on EBM change to pasteurised EBM if possible. Advance feeds by 10ml/kg/day not 20ml/kg.
- If NEC is suspected: Keep NPO for 3 days, increase IV fluids and then reassess
- If NEC is definite/ Advanced: Keep nil per mouth for 10-14days. Commence TPN. Commence triple antibiotics and refer for surgical consult if advanced.

SIGNS OF NEC: (See NEC Guideline)

NEC STAGE	SYSTEMIC SIGNS	GI SIGNS	RADIOGRAPHIC
STAGE I SUSPECTED	<ul style="list-style-type: none"> ✓ Temperature instability ✓ Lethargy ✓ Apnoea ✓ Bradycardia 	<ul style="list-style-type: none"> ✓ Poor feeding ✓ ↑ aspirates(possibly bilious) ✓ Vomiting ✓ Mild abdominal distension ✓ Occult blood in stools 	<ul style="list-style-type: none"> ✓ Distension with mild ileus
STAGE II DEFINITE	<ul style="list-style-type: none"> ✓ As for stage I 	<ul style="list-style-type: none"> ✓ Marked abdominal distension ✓ Persistent occult blood ✓ Gross GIT bleeding 	<ul style="list-style-type: none"> ✓ Significant distension with ileus ✓ Thickened bowel walls ✓ Fixed bowel loops ✓ Small bowel separation ✓ “Soap bubbling” ✓ Pneumatosis intestinalis ✓ Portal venous air
STAGE III ADVANCED	<ul style="list-style-type: none"> ✓ As in stage I plus deterioration in vital signs 	<ul style="list-style-type: none"> ✓ Possible evidence of marked GI haemorrhage 	<ul style="list-style-type: none"> ✓ As above ✓ Possibly GIT perforation ✓ Pneumoperitoneum



	✓ Septic shock		
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Advancing feeds:

- Aim for an average weight gain of 1% per Kg body weight per day (eg 10g for 1000g baby). Monitor using daily weight chart and percentile chart weekly.
- Aim to achieve full feeds of 150-180ml/kg/day by week 2 or 3 at the latest.
- Aim for the provision of 120kcal/kg/day

Transitioning To Breast Feeding: (See Feeding Transition Assessment Tool)

- Encourage non-nutritive sucking on an empty breast and skin to skin care during all NG feeds.
- The baby's suck/ swallow/breathing are usually fully coordinated by 36 weeks gestation but commence from 34 weeks (or earlier if baby nursed skin to skin). Do not attempt to initiate oral feeding if the below signs are not present as this will delay the acquisition of breastfeeding, prolong hospital stay and cause frustration in mother and baby possibly leading to poor long term breast feeding.
- Observe for signs of feeding readiness: The baby should have:
 - Intact suck and gag reflexes.
 - Be on full volume NG feeds.
 - Good periods of quiet sleep.
 - Good sleep/ wake cycles and wakes easily.
 - Be able to maintain a quiet alert state (Eyes open, no movement to full body movement) or
 - Should show signs of hunger (Movement of hand to mouth, dummy/ fingers/ fist sucking, restlessness and crying).
- Breast feeding requires more energy than NG feeds. When weaning onto oral feeds, monitor daily weight very closely. Should baby loose weight the method of oral feeding should be reconsidered or advanced more slowly. Commence oral feeds with great caution if baby weighs less than 1500g as and he may not tolerate orally, may aspirate and may tire and loose weight.
- Babies can be weaned straight from NGT to breast-feeding without the need to express and give via cup. Cup feeding has been observed to increase risk of weight loss, prolong replacement feeding rather than breast feeding and increase risk of aspiration and therefore possibly increase length of hospital stay. Therefore:
 - Introduce breast-feeds slowly 1-2 feeds per day as tolerated. Feeding should be offered every +/- 3hrs when the baby comes to quiet awake state
 - If baby is not waking for feeds, is falling asleep, desaturates or becomes pale or blue during feeds, drools milk or is losing weight stop oral feeds and continue NG feeds for a couple of days and then retry.
- During feeding the baby should be wrapped in a blanket with his hands and arms free, held in a semi upright position with the head supported and the neck in a neutral position.
- **N.B Ensure mother has sufficient milk** – Review expression technique, frequency of milk removal including expression to maximum capacity. Additional support will be required to ensure sufficient milk supply. Referral to the lactation advisor and dietitian may be required. Provide Maxalon to mother. Conduction nutritional assessment and classification, provide nutrition supplements to mother if necessary.

Appendix 11: Case Definitions of Medical Complications with SAM

Anorexia, appetite* poor	Child is unable to drink or breastfeed.
Intractable vomiting*	Child is vomiting after every oral intake
Convulsions*	During a convulsion, the child has uncontrollable movements of limbs and/or face, and/or rolling eyes and/or loss of consciousness. Ask the mother if the child had convulsions during this current illness.
Lethargy, not alert*	Child is difficult to wake. Ask the mother if the child is drowsy, shows no interest in what is happening around him/her, does not look at the mother or watch her face when talking, or is unusually sleepy.
Unconsciousness*	Child does not respond to painful stimuli (e.g., injection).
Hypoglycaemia	Child may present with blurry vision, rapid heartbeat, sudden mood changes, fatigue, pale skin, headache, hunger, shaking, dizziness, sweating, difficulty sleeping, skin tingling.
High fever	Child has a high body temperature – axillary temperature $\geq 38.5^{\circ}$ C or rectal temperature $\geq 39^{\circ}$ C – taking into consideration the ambient temperature.
Hypothermia	Child has a low body temperature – axillary temperature $< 35^{\circ}$ C or rectal temperature $< 35.5^{\circ}$ C – taking into consideration the ambient temperature.
Severe dehydration	For children with SAM, diagnosis of severe dehydration is based on recent history of diarrhoea, vomiting, high fever or sweating, and on recent appearance of clinical signs of dehydration as reported by the caregiver.
Persistent diarrhoea	An episode of diarrhoea which starts acutely but which lasts at least 14 days
Lower respiratory tract infection	Child has a cough with difficult breathing, fast breathing (if child is 2-12 months: 50 breaths per minute or more; if child is 12 months - 5 years: 40 breaths per minute or more) or chest in drawing.
Severe anaemia	Child has palmer pallor or unusual paleness of the skin (compare the colour of the child's palm with the palms of other children); Haemoglobin (Hb) < 40 grams per litre (g/l), or if there is respiratory distress and Hb is between 40 and 60 g.
Eye signs of vitamin A deficiency	Stages of xerophthalmia are: conjunctival xerosis or dry, opaque and dull conjunctiva with or without Bitot's spots (foamy material on conjunctiva); corneal xerosis or dry and dull cornea; keratomalacia or ulceration, necrosis, perforation of cornea, leading to total blindness.
Skin lesion	Child has broken skin, fissures or flaking of skin.
Jaundice	Jaundice is a yellow colour of the skin, mucus membranes, or eyes. The yellow colouring comes from bilirubin, a byproduct of old red blood cells.
Bleeding	Bleeding occurs externally, either through a natural opening such as the mouth, nose, ear, vagina or anus, or through a break in the skin or internally, where blood leaks from blood vessels inside the body.

* denotes Integrated Management of Childhood Illness (IMCI) danger signs

Appendix 12: Recipes for making stabilizing feed (F75) and catch-up feed (F100)

F75	F100		Recipe for Diluted F100
Full-cream cow's milk	300ml	880ml	<ul style="list-style-type: none"> • Add 35ml of water to 100 ml of F100 all prepared, which will yield 135ml of F100 Diluted. Discard any excess milk after use. • If you need more than 135 ml use 200ml F100 add 70 ml of water to make 270ml F100 diluted and discard any excess milk after use.
Sugar	100g	75g	
Oil	20ml	20ml	
CMV	1 scoop	1 scoop	
Water: make up to	1000ml	1000ml	

F75		F100	
<i>Containing per 100ml:</i>		<i>Containing per 100ml:</i>	
Energy	75kcal	Energy	100kcal
Protein	0.9g	Protein	2.5 -3.0g
Fat	2.0g	Fat	5.5 – 6.0g
Carbohydrate	13g	Carbohydrate	8 -10g
Vitamin A	150mcg	Vitamin A	171mcg
Vitamin D	3.0mcg	Vitamin D	3.0mcg
Vitamin B1	0.07mg	Vitamin C	10mg
Vitamin B2	0.2mg	Vitamin B1	0.1mg
Vitamin B6	0.07mg	Vitamin B2	0.3mg
Vitamin B12	0.1mcg	Vitamin B6	0.1mg
Vitamin C	10mg	Vitamin B12	0.3mcg
Folic acid	35mcg	Vitamin K	4.0mcg
Niacin	1.0mg	Folic acid	40mcg
Vitamin K	4mcg	Niacin	1.0mg
Calcium	32mg	Calcium	91mg
Phosphorus	24mg	Phosphorus	76mg
Magnesium	10.5mg	Magnesium	15mg
Potassium	157mg	Potassium	209mg
Zinc	2.0mg	Zinc	2.2mg
Selenium	4.7mcg	Selenium	4.7mcg
Copper	0.28mg	Copper	0.26mg
Iron <0.03mg		Iron	<0.06mg
Sodium	<13mg	Sodium	<46mg
Osmolarity	280mOsm/litre	Osmolarity	320mOsm/litre

Appendix 13: Stabilizing feed (F75) Feeding Chart

Weight of child (kg)	Volume of F-75 per feed (ml) ^a			Daily total (130 ml/kg)	80% of daily total ^{aa} (minimum)
	Every 2 hours ^b	Every 3 hours ^c	Every 4 hours		
	(12 feeds)	(8 feeds)	(6 feeds)		
2.0	20	30	45	260	210
2.2	25	35	50	286	230
2.4	25	40	55	312	250
2.6	30	45	55	338	265
2.8	30	45	60	364	290
3.0	35	50	65	390	310
3.2	35	55	70	416	335
3.4	35	55	75	442	355
3.6	40	60	80	468	375
3.8	40	60	85	494	395
4.0	45	65	90	520	415
4.2	45	70	90	546	435
4.4	50	70	95	572	460
4.6	50	75	100	598	480
4.8	55	80	105	624	500
5.0	55	80	110	650	520
5.2	55	85	115	676	540
5.4	60	90	120	702	560
5.6	60	90	125	728	580
5.8	65	95	130	754	605
6.0	65	100	130	780	625
6.2	70	100	135	806	645
6.4	70	105	140	832	665
6.6	75	110	145	858	685
6.8	75	110	150	884	705
7.0	75	115	155	910	730
7.2	80	120	160	936	750
7.4	80	120	160	962	770
7.6	85	125	165	988	790
7.8	85	130	170	1014	810
8.0	90	130	175	1040	830
8.2	90	135	180	1066	855
8.4	90	140	185	1092	875
8.6	95	140	190	1118	895
8.8	95	145	195	1144	915
9.0	100	145	200	1170	935
9.2	100	150	200	1196	960
9.4	105	155	205	1222	980
9.6	105	155	210	1248	1000
9.8	110	160	215	1274	1020
10.0	110	160	220	1300	1040

^aVolumes in these columns are rounded to the nearest 5 ml.

^bFeed 2-hourly for at least the first day. Then, when little or no vomiting, modest diarrhoea (<5 watery stools per day), and finishing most feeds, change to 3-hourly feeds.

^cAfter a day on 3-hourly feeds: If no vomiting, less diarrhoea, and finishing most feeds, change to 4-hourly feeds.

Appendix 14: Stabilizing feed (F75) Feeding Chart for Children with Gross (+++) Oedema

Weight with +++ oedema (kg)	Volume of F-75 per feed (ml) ^a			Daily total (100 ml/kg)	80% of daily total ^a (minimum)
	Every 2 hours ^b (12 feeds)	Every 3 hours ^c (8 feeds)	Every 4 hours (6 feeds)		
3.0	25	40	50	300	240
3.2	25	40	55	320	255
3.4	30	45	60	340	270
3.6	30	45	60	360	290
3.8	30	50	65	380	305
4.0	35	50	65	400	320
4.2	35	55	70	420	335
4.4	35	55	75	440	350
4.6	40	60	75	460	370
4.8	40	60	80	480	385
5.0	40	65	85	500	400
5.2	45	65	85	520	415
5.4	45	70	90	540	430
5.6	45	70	95	560	450
5.8	50	75	95	580	465
6.0	50	75	100	600	480
6.2	50	80	105	620	495
6.4	55	80	105	640	510
6.6	55	85	110	660	530
6.8	55	85	115	680	545
7.0	60	90	115	700	560
7.2	60	90	120	720	575
7.4	60	95	125	740	590
7.6	65	95	125	760	610
7.8	65	100	130	780	625
8.0	65	100	135	800	640
8.2	70	105	135	820	655
8.4	70	105	140	840	670
8.6	70	110	145	860	690
8.8	75	110	145	880	705
9.0	75	115	150	900	720
9.2	75	115	155	920	735
9.4	80	120	155	940	750
9.6	80	120	160	960	770
9.8	80	125	165	980	785
10.0	85	125	165	1000	800
10.2	85	130	170	1020	815
10.4	85	130	175	1040	830
10.6	90	135	175	1060	850
10.8	90	135	180	1080	865
11.0	90	140	185	1100	880
11.2	95	140	185	1120	895
11.4	95	145	190	1140	910
11.6	95	145	195	1160	930
11.8	100	150	195	1180	945
12.0	100	150	200	1200	960

^aVolumes in these columns are rounded to the nearest 5 ml. ^bFeed 2-hourly for at least the first day. Then, when little or no vomiting, modest diarrhoea (<5 watery stools per day), and finishing most feeds, change to 3-hourly feeds. ^cAfter a day on 3-hourly feeds: If no vomiting, less diarrhoea, and finishing most feeds, change to 4-hourly feeds.

Appendix 15: Ranges of catch-up feed for free feeding

Weight of child (kg)	Range of volumes per 3-hourly feed of		Range of volumes per 4-hourly feed of F-100		Range of daily volumes of F-100	
	F-100 (8 feeds daily) *		(6 feeds daily) *		Minimum (150 ml/kg/day)	Maximum ml (220 ml/kg/day)
	Minimum ml	Maximum ml	Minimum ml	Maximum ml		
2.0	40	55	50	75	300	440
2.2	40	60	55	80	330	484
2.4	45	65	60	90	360	528
2.6	50	70	65	95	390	572
2.8	55	75	70	105	420	616
3.0	55	85	75	110	450	660
3.2	60	90	80	115	480	704
3.4	65	95	85	125	510	748
3.6	70	100	90	130	540	792
3.8	70	105	95	140	570	836
4.0	75	110	100	145	600	880
4.2	80	115	105	155	630	924
4.4	85	120	110	160	660	968
4.6	85	125	115	170	690	1012
4.8	90	130	120	175	720	1056
5.0	95	140	125	185	750	1100
5.2	100	145	130	190	780	1144
5.4	100	150	135	200	810	1188
5.6	105	155	140	205	840	1232
5.8	110	160	145	215	870	1276
6.0	115	165	150	220	900	1320
6.2	115	170	155	230	930	1364
6.4	120	175	160	235	960	1408
6.6	125	180	165	240	990	1452
6.8	130	180	170	250	1020	1496
7.0	130	195	175	255	1050	1540
7.2	135	200	180	265	1080	1588
7.4	140	205	185	270	1110	1628
7.6	145	210	190	280	1140	1672
7.8	145	215	195	285	1170	1716
8.0	150	220	200	295	1200	1760
8.2	155	225	205	300	1230	1804
8.4	158	230	210	310	1260	1848
8.6	160	235	215	315	1290	1892
8.8	165	240	220	325	1320	1936
9.0	170	250	225	330	1350	1980
9.2	175	255	230	335	1380	2024
9.4	175	260	235	345	1410	2068
9.6	145	265	240	350	1140	2112
9.8	185	270	245	360	1470	2156
10.0	190	275	250	365	1500	2200

*Volumes per feed are rounded to the nearest 5ml.



Appendix 17: Daily Ward Feed Chart

DAILY WARD FEED CHART

DATE: _____

WARD: _____

Name of Child	F75			F100		
	Number feeds	Amount feeds (ml)	Total (ml)	Number feeds	Amount feeds (ml)	Total (ml)
F75 (total ml) needed for 24 hours				F100 (total ml) needed for 24 hours		
Amount needed for 12 hours*				Amount needed for 12 hours*		
Amount to prepare for 12 hours (round up to whole litre)				Amount to prepare for 12 hours (round up to whole litre)		
Amount to re-warm (or prepare) every 3 hours**				Amount to re-warm (or prepare) every 3 hours**		

* Divide ml needed for 24 hours by 2 ** Divide amount to prepare for 12 hours by 4

Appendix 18: Death Review Form of Severe Acute Malnutrition

Some children are so ill that even with the best care they cannot be saved. This form is to help identify any errors or omissions in care, or lack of supplies, that may have contributed to a child's death, so that these can be discussed and problems identified and solved. The questions below relate to common causes of preventable death in severe malnutrition. If other errors, omissions or problems in care are identified when reviewing patients' records then these should also be discussed and resolved. If any of the information is not available, discuss how to rectify for the future.


Child Name	
Ward	
Record number	
Staff on duty at time of death	
Time doctor was called	
Death review carried out by	
Description of events preceding death	
Age (months)	
HIV status	
TB status	
Oedema grade (0 + ++ +++)	
Was child admitted elsewhere immediately before referral to this hospital? If YES, name of hospital and duration of treatment	YES / NO
Date and time admitted to current ward	
Circle when child died	<24 hours Day 2-3 Day 4-7 >7days
Circle if child died during night and/or at weekend	Night shift Weekend
<i>If child died within 24 hours, answer questions (a) and (b)</i>	
a) Circle time child spent waiting in OPD	<2 hours > 2 hours
b) Was child treated in casualty of current hospital? If YES, were IV fluids or rehydration fluids given in casualty?	YES / NO YES / NO
<i>If child died <24 hours, consider especially delays in treatment and administration of IV fluids (including any given in casualty or at referring hospital)</i> <i>For all deaths, consider especially the possibility of hypoglycaemia, hypothermia, heart failure (from</i>	



<i>fluid overload) and sepsis.</i>		
<i>If the following statements are true, write YES (to indicate presence of danger sign or an error or omission in care). If the record is incomplete or unclear, write '?'. Write ' - ' to show you have checked and no error or omission was found.</i>	Enter YES if true	COMMENT
Hypoglycaemia/hypothermia: check waiting time, intake charts, and vital signs chart for evidence of low temperature		
F75 (or 10% glucose/sucrose solution) was not given within 30min of arriving on ward		
F75 prescription was incorrect (amount, frequency)		
Child was fed ward diet or food from home during stabilisation		
Some feeds were missed (Note: check especially night feeds: feeds may be charted but not given)		
Child was refusing or eating poorly, but NG tube was not passed		
Child had evidence of low temperature		
Heart failure: check for inappropriate treatments, fluids prescribed, monitoring, timing of transition and provision of potassium (NB fluid overload can be misdiagnosed as pneumonia)		
Child received IV fluids or blood transfusion in last 48 hours If YES, answer questions (a-f) below		
a) Child had evidence of gasping, or increased PR (by 25 beats/min) and RR (by 5 breaths/min)(Check especially in 6 hours before death		
b) IV fluids were given but child was not in shock		
c) IV fluid was wrong type (e.g. N saline), or wrong volume, or given for longer than 2 hours		
d) Child's PR and RR were not monitored every 10 min during IV		
e) Blood transfusion was given for anaemia on Day 1 but Hb was not <4g/dl		
f) Blood transfusion was given after the first day,		



or more than one transfusion was given		
Wrong volume of ORS as prescribed, or was continued for too long		
Child's PR and RR were not monitored at least hourly during rehydration		
Potassium was not provided (either in feeds or separately)		
Child was going through transition to F100 and transition to F100 was too early (had oedema and/or not hungry), or amount was too large		
Sepsis: check antibiotic prescription and nurses' medicine chart and check vital signs chart for evidence of infection		
Child had evidence of severe infection, or raw skin/fissures		
Antibiotics were not prescribed from Day 1, or wrong choice of drugs, or doses were missed		
History		
Dietary history indicative of mixed feeding in the first 6 months.		
Diet history assessment indicative of inadequacy		
Social worker assessment indicative of neglect, abuse or other social ills.		
Weak areas of treatment: (include quality of record keeping and monitoring)		
Suspected cause of death:		
Agreed Actions	By Whom	When



Appendix 19: Standard Operating Procedure for Lactation Management and Support – Positioning and Attachment

1. Breastfeeding is a learned skill that sometimes presents challenges for a breastfeeding mother trying to adjust to her new role, and requires considerable support from healthcare providers.
2. Key important principles to successful breastfeeding must be discussed and explained to mothers to enable and empower them to breastfeed successfully and comfortably.

Optimum position of mother:


3. There are many positions a mother may use to breastfeed her baby.
4. The best position for the mother is simply the position she feels most comfortable in.
5. This may be sitting in bed, on a chair or on the floor, lying down, standing up or walking.
See Form 7 for examples of breastfeeding positions
6. The mother may be breastfeeding for extended periods, especially in the early days, so should be relaxed and comfortable when learning the skill of breastfeeding.
7. If the infant is well attached and suckling effectively, do not interfere with the breastfeed, reassure her that she is doing well to build her confidence.

Optimum position of infant:

8. The optimum position for the infant is one that requires the least effort for the infant and ensures an effective breastfeed.
9. Mother should assess the natural position of her breasts and the level of her nipple.
10. Support and bring infant up to the breast not the breast down to the baby as this could cause back strain. The simple term 'Baby to Breast' can be used.
11. Infant's body should be facing the mother.
12. The infant's ear, shoulder and hip should be in a straight line to avoid the neck being positioned too far forward or back. The simple term 'Tummy to Mummy' can be used to describe this.
13. Infant's nose should be positioned opposite mother's nipple. The simple term 'Nose to Nipple' can be used to describe this.
14. Infant's head and shoulders should be supported, when feeding a new-born the whole body should be tucked close to mother's body.
15. Infant's head should be tilted slightly back and appear as the infant is 'sniffing'
16. Infant will demonstrate 'rooting' reflex by opening mouth widely to seek breast. Brush the nipple against the infant cheek to stimulate 'rooting'
17. The mother may want to support the weight of her breast with a cupped hand but must be aware not to guide the nipple with her fingers
18. The mother should avoid using the fingers to make a 'scissor grip' of the breast as this can block milk ducts and obstruct her infant's body from being pulled in close.
19. If the mother feels the breast is heavy and requires support, support the breast from below in the "u-hold" as is shown in the cross-cradle position in Form 7.

Signs of good attachment:

20. Ensure infant's mouth is wide open before attaching to the breast
21. Nipple and areola are drawn deeply into infant's mouth, more areola is visible above than below infant's mouth.
22. Lower lip is curled outward
23. Infant's chin touches the breast but the nose is free to allow for breathing - pulling back or pushing down on breast is not recommended.
24. Jaw movement clearly seen
25. No sucking in of infant's cheeks, i.e. cheeks rounded.
26. Breast or nipple does not hurt during breastfeeding
27. Infant is relaxed, takes slow, deep mouthfuls and you can hear swallowing

- 
28. No clicking sounds heard while infant is suckling
 29. After the breastfeed, the nipple is the same shape as when the feed began (not squashed or flattened)

Poor attachment results in:

30. Painful, damaged nipples (grazes, abrasions, cracks at base of nipple)
31. Inefficient removal of breastmilk from the breasts which results in low breastmilk supply and ultimately breastfeeding failure if not addressed.
32. Mother can develop an aversion to breastfeeding and stop sooner than she had intended.

How to remove the infant from the breast

33. If the infant is not well attached and breastfeeding is uncomfortable or painful, the mother will need to remove the infant off the breast so that she can reposition her infant.
34. If the infant falls asleep at the end of a feeding and is still holding on to the mother's breast, she may want to detach the infant.
35. When removing the infant, the mother should not pull the infant off the breast, as this can damage the delicate skin around nipple and areola.
36. The infant may also bite down on the mother's nipple which can be very painful for the mother and cause nipple trauma.

37. Gently slide her finger into the side of her infant's mouth, past the lips and between the infant's gums. This will break the suction between the mouth and the mother's breast.

38. Once the infant opens the mouth, instruct the mother to keep her finger between the infant's gums and gently **remove her breast which will avoid the infant from accidentally biting down on the nipple.**



Appendix 20: SOP on Feeding the Non-Breastfed Infant

1. All health facilities should have a dedicated area (closed room) and necessary equipment available for demonstrating the preparation and use of powdered infant formula as a one-on-one session.
2. All appropriate clinical staff should be orientated and trained how to teach a mother how to safely formula feed during the 3-5 day Breastfeeding training course.
3. Health care personnel should be able to demonstrate the preparation of powdered infant formula safely and correctly to those mothers who need to use it.
4. Mothers must be able to back demonstrate to clinical staff after they have been shown / taught how to prepare infant formula.

Safe infant formula feeding (refer to page 15 of the Infant and Young Child Feeding Policy 2013)


5. Ensure the mother has all the information she required to make an informed decision on her method of feeding.
6. This decision should have been made using the Infant Feeding Counselling Framework during her antenatal care clinic individual counselling. Please refer to the Standard Operating Procedure for Infant Feeding Counselling.
7. Ensure she is able to fulfil the six specific conditions to safely formula feed.
8. Ensure she understands that she needs to consider her ability to provide commercial infant formula for 12 months.
9. That she understands the risks associated with infant formula feeding.
10. Mothers who are unable to breastfeed due to medical conditions should be counselled as per the Standard Operating Procedure for Infant Feeding Counselling and educated on an individual basis on the recommendations for safe formula feeding.
11. Mothers who decide not to breastfeed their infants (irrespective of the HIV status) should meet all the specific conditions to safely formula feed as listed below.

The Six Specific Conditions Needed to Safely Formula Feed

- 1. Safe water and sanitation are assured at the household level; and**
- 2. The mother, or other caregiver can reliably provide sufficient infant formula to support normal growth and development of the infant; and**
- 3. The mother or caregiver can prepare it hygienically and frequently enough so that it is safe and carries a low risk of diarrhoea and malnutrition; and**
- 4. The mother or caregiver can, in the first six months, exclusively give infant formula; and**
- 5. The family is supportive of this practice; and**
- 6. The mother or caregiver can access health care that offers comprehensive child health services.**

Please note: all six specific conditions should be met. These descriptions are intended to give simpler and more explicit meaning to the concept represented by AFASS (acceptable, feasible, affordable, sustainable and safe).

12. Mothers who decide to not breastfeed whilst in hospital should provide informed written consent, indemnifying the Department of Health against the risks associated with not breastfeeding. Please refer to the consent form in the tool sections, Form 8.
13. All mothers should receive an opportunity to discuss at delivery and labour to confirm how she will feed her baby.
14. Provide the mother with a one-on-one counselling and training session on safe infant formula preparation.
15. Assess her ability to make up an infant formula feed, and to read the manufacturer's instructions on the product.

- 
16. Ensure mothers and caregivers are aware of how to clean and sterilise preparation equipment properly with the resources she has available to her.
 17. Ensure she has received a cup-feeding demonstration, is able to feed her baby with a cup and understands why this is the preferred method of feeding before discharge from the healthcare facility.

Safe storage and preparation of commercial infant formula milk

18. Follow the manufacturer's instructions regarding quantity and storage.
19. Store in a clean area and with the lid securely fixed.
20. Wash hands thoroughly prior to preparation.
21. Ensure utensils and preparation area is clean and sterile.
22. Clean, previously boiled water used to make up feeds.
23. Only make up as much formula as is required.
24. Encourage cup feeding as the preferred method of formula feeding.
25. Discard any unused formula immediately after use

Appendix 21: Protocol for Emergency Treatment of SAM in South Africa

<h1 style="margin: 0;">SEVERE ACUTE MALNUTRITION EMERGENCY TREATMENT IN SOUTH AFRICA</h1> <p style="font-size: small; margin: 0; color: white;">Complicated cases of Severe Acute Malnutrition have a very high risk of dying during the first 48 hours of admission. Early recognition of emergency signs and early treatment will improve likelihood of survival in hospital.</p>	
CONDITION	IMMEDIATE ACTION
<p>Treat shock</p> <p>Shock is suspected in these children if the child is lethargic or unconscious, and has cold hands</p> <p>Plus either:</p> <p>Weak fast pulse</p> <p>or Slow capillary refill (longer than 3 seconds)</p> <p>Monitor closely: children in shock need frequent monitoring of vital signs (pulse rate and volume, respiratory rate, urine output, glucose, etc)</p>	<p>If child is in shock:</p> <ol style="list-style-type: none"> 1. Give oxygen. Treat and prevent hypoglycaemia and hypothermia. 2. Give IV 0.9% Normal Saline bolus fluid at 10ml/kg over 20minutes. Monitor response. 3. If there are signs of improvement (e.g. slower pulse and respirations) repeat bolus 10ml/kg over 20 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. <p>If there are no signs of improvement assume child has <i>septic shock</i>:</p> <ul style="list-style-type: none"> ✓ 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. <ol style="list-style-type: none"> 4. Only transfer the child to ward once signs of shock have resolved.
<p>Treat very severe anaemia</p> <p>Very severe anaemia is Hb<4g/dL</p>	<p>If very severe anaemia (or Hb 4-6g/dl AND respiratory distress):</p> <ol style="list-style-type: none"> 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. <p>NB Keep a close eye for signs of fluid overload: further tachycardia, gallop rhythm, breathing even faster, puffy eyelids, enlarging liver size</p>
<p>Treat hypoglycaemia</p> <p>Hypoglycaemia is a blood glucose <3mmol/L</p> <p>Assume hypoglycaemia if no dextrostix available</p>	<p>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 ill¹.</p> <ul style="list-style-type: none"> ▪ If the blood glucose <3 mmol/L in asymptomatic child, give orally or by NG tube: <ul style="list-style-type: none"> ▪ immediate feed of a "stabilizing feed (F75)", or ▪ 50ml bolus of 10% dextrose, or ▪ sugar solution 5 ml/kg ▪ Re-Check the Blood Glucose after 30 min, if normal continue normal feeds, monitor blood glucose to see it remains above 3 mmol/L. <ul style="list-style-type: none"> ▪ If symptomatic or unresponsive hypoglycaemia give dextrose 10%², IV, 5 ml/kg over 2-3 minutes³. <p>Re-Check the Blood Glucose after 30 min, if normal, continue feeds, monitor blood glucose to see it remains above 3 mmol/L.</p>
<p>Treat hypothermia</p> <p>Hypothermia is axillary/underarm temperature <35°C.</p>	<p>Take temperature at outpatients/casualty and on admission in the ward. (Ensure thermometer is well shaken down).</p> <p>If the temperature is below 36.5°C:</p> <ol style="list-style-type: none"> 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). <p>Monitor during re-warming</p> <ul style="list-style-type: none"> ▪ Take temperature every two hours: stop active re-warming when temperature rises above 36.5°C. Take temperature every 30 minutes if heater is used because the child may become overheated.
<p>Emergency Eye Care</p> <p>Corneal Ulceration is a sign of severe Vitamin A deficiency.</p>	<p>If corneal ulceration:</p> <ol style="list-style-type: none"> 1. Give Vitamin A immediately (<6 months 50,000IU, 6-11 months 100,000 IU, 12-59 months 200,000IU) only if the child has signs of Vitamin A deficiency or has measles. <p>Record dose given in prescription chart and RTHB.</p> <ol style="list-style-type: none"> 2. Instil one drop atropine (1%) into affected eye to relax the eye and prevent the lens from pushing out.

¹(Footnote)

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.

Appendix 22: SAM Clinical Audit Tool

Criteria	Current Admission (One patient per a quarter)					Discharge (One patient per a quarter)				
Gender										
Age:										
Admission Weight:										
Length/Height:										
Admission MUAC:										
WLZ:										
Oedema grade:										
HIV Status:										
Where referred from:										
Neglect/abandonment:										
New Admission / re-admission: Score: +2=Fully Compliant / +1=Partially Compliant / -1=Non-compliant / -2= Against standard guidelines / 0=Did not score	2	1	-1	-2	0	2	1	-1	-2	0
1. Was blood sugar tested at OPD/Casualty?										
2. Was feeding commenced at OPD/Casualty?										
3. Were blood sugars tested 3 hourly during acute phase (until stabilised)?										
4. If the blood sugar was less than 3mmol/L, was appropriate action taken and documented?										
5. Is the child being fed 2-3 hourly?										
6. Is the child's body temperature taken 3-4 hourly? (We check all vitals 3 hourly)										
7. If temperature was below 35 °C, was the child warmed or appropriate actions taken to warm the child?										



8. Was the child kept warm, away from open draft, and covered at all times?									
9. In a child with signs of dehydration, was the child rehydrated using a suitable rehydration solution at recommended volumes?									
10. Are IV fluids used according to guidelines?									
11. Is the patient taking RTU F75 / F100 or a feed where CMV mix is added?									
12. Were antibiotics given according to guidelines?									
15. Was albendazole/Mebendazole given before discharge – age appropriate dose?									
16. Was HIV investigated? (it is worth splitting these two, since some children need only one investigation, the other is confirmed/known, or only one was done and the other missed, then it is hard to score)									
17. Was TB investigated?									
18. Immunisation schedule caught up before discharge if not up to date?									
17. Was a Vitamin A age appropriate. stat dose given if the child presented with recent measles/diarrhoea/ clinical eye signs?									
18. Was a stat dose of Folate given (5mg) [No dly dose if on F75/F100]?									
19. Was iron (3mg/kg/dose 8 hrly) started during the rehabilitation phase?									
20. If in stabilization phase, is the child being fed with a starter formula?									
21. Is the food/fluid intake being recorded accurately using the fluid/feed chart?									
22. Once the child's appetite returned (transition phase) or in rehabilitation phase, was the child put on to catch-up									



formula (F100)										
22. Is weight being recorded and plotted daily?										
27. Are therapists involved in providing age appropriate sensory stimulation?										
29. Has the child been referred to & seen by the social worker?										
31. Did the caregiver receive nutrition education (by any member of the MDT)?										
32. Were nutrition supplements (micronutrients, and/or food supplements) issued on discharge?										
34. Was the patient referred to her respective CHW for monitoring at household level?										
COLUMNS TOTAL	0	0	0	0	0	0	0	0	0	0
TOTALS (Add all scores in each column first; then add the totals row)	0					0				



Appendix 23: Descriptions OF EDAC AND GMFCS Levels in Children with Neurodevelopment Disorders

Level I Eats and drinks safely and efficiently

- Eats a wide range of different texture foods that are age appropriate.
- May be challenged by some very firm bite and chew foods.
- Moves food from one side of the mouth to the other; may close lips whilst chewing.
- Drinks thin or thick fluids from range of cups with consecutive swallows, including through a straw.
- May cough or gag for very challenging textures.
- Eats and drinks at a similar speed to peers.
- Retains most food or fluid in the mouth.
- Clears food from most tooth surfaces and dislodges most foods from the sides of the mouth.

Distinctions between I and II: Compared with Level I, individuals in Level II will have some limitations with more challenging food textures. Eating and drinking will take longer for individuals at Level II.

Level II Eats and drinks safely but with some limitations to efficiency

- Eats a range of food textures that are age appropriate.
- Challenged by some firm bite, effortful chew, mixed and sticky textures.
- Moves food slowly from one side of the mouth to the other using the tongue.
- May chew with lips open.
- Drinks thin or thick fluids from most cups with consecutive swallows; may drink through a straw.
- Coughs or gags on new or challenging textures or when tiring.
- May sometimes cough if fluid is fast flowing or large quantity taken in the mouth.
- May tire if textures challenging and mealtimes will take longer than for peers.
- Loses small amounts of food or fluid especially challenging textures.
- Some foods will collect on some tooth surfaces and between cheeks and gums.

Distinctions between II and III: Individuals in Level II manage most age appropriate food textures and drink with some slight modifications. Individuals at Level III will need more food textures to be modified in order to reduce risk of choking. 8 Eating and Drinking Ability Classification System

Level III Eats and drinks with some limitations to safety; there may be limitations to efficiency

- Eats puree and mashed food and may bite and chew some soft chew food textures.



- Challenged by large lumps, firm bite and effortful chew textures which may lead to choking and reduced efficiency.
- It is challenging to move food from one side of the mouth to the other, to keep food in the mouth, and to bite and chew for safe eating.
- Eating and drinking performance is variable and depends upon overall physical ability, positioning or assistance given.
- May drink from an open cup but drinking from cup with a lid or spout may be required to control the flow of fluid.
- May drink thickened fluids more easily than thin and may need time between sips.
- May choose to drink only in certain situations such as with a trusted carer or with no distractions.
- Specific food textures and positioning of food in mouth are required to reduce the risk of choking.
- May cough or aspirate if fluid is fast flowing or large quantity taken in the mouth.
- May tire whilst eating if food requires chewing and mealtimes will be prolonged.
- Food and fluid loss is likely and food will collect on tooth surfaces, roof of the mouth and between cheeks and gums.

Distinctions between III and IV: Individuals at Level III manage to chew soft lumps. Individuals at Level IV will need close attention given to a number of different factors to swallow food and drink safely because of the significant aspiration and choking risk.

Level IV Eats and drinks with significant limitations to safety

- Eats smooth purees or well mashed food.
- Challenged by food that requires chewing; choking may occur if lumps are eaten.
- May at times be difficult to co-ordinate swallowing and breathing when eating and drinking as shown by signs of aspiration.
- It is challenging to control the movement of food and fluid in the mouth, to control mouth opening and closure, and to control swallowing, biting and chewing.
- May swallow lumps whole. 9 Eating and Drinking Ability Classification System
- May find it easier to drink thickened fluids than thin fluids; thickened fluids taken slowly and in small quantities from an open cup may increase control whilst drinking.
- May choose not to drink fluids or to drink only in certain situations such as with trusted carer.
- Likely to need time between mouthfuls to swallow repeatedly before continuing.
- Will require specific food textures, fluid consistency, techniques, skilled carers, positioning and modified environment to reduce risks of aspiration and choking and increase efficiency.

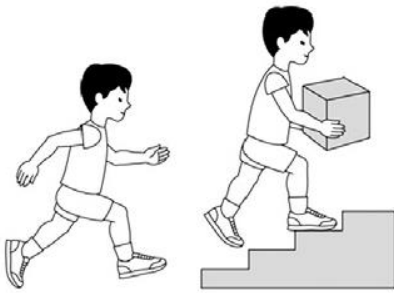


- May tire whilst eating and mealtimes are likely to be prolonged.
- Significant food and fluid loss from the mouth.
- Food may become stuck on tooth surfaces, roof of the mouth and between teeth and gums.
- Supplementary tube feeding may be considered.

Distinctions between IV and V: Individuals at Level IV are able to swallow safely only if close attention is given to food texture and fluid consistency as well as the way in which food or drink is offered. Individuals at Level V cannot swallow safely so that taking food or drink in to their mouths will cause harm.

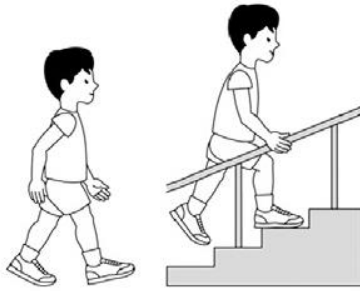
Level V Unable to eat or drink safely – tube feeding may be considered to provide nutrition

- May manage very small tastes or flavours.
- Ability to manage small tastes and flavours will be affected by positioning, personal factors and environmental features.
- Unable to swallow food or drink safely due to limitations to the range and co-ordination of movement for swallowing and breathing.
- It is likely to be challenging to control mouth opening and tongue movement.
- Aspiration and choking are very likely.
- Harm from aspiration is evident.
- May require suction or medication to keep airway clear of secretions.
- Alternative means of providing nutrition such as tube feeding may be considered.



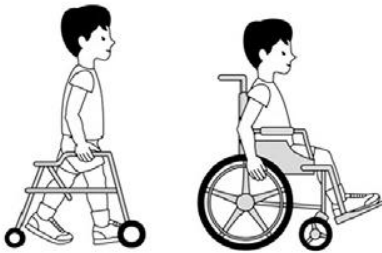
GMFCS Level I

Children walk at home, school, outdoors and in the community. They can climb stairs without the use of a railing. Children perform gross motor skills such as running and jumping, but speed, balance and coordination are limited



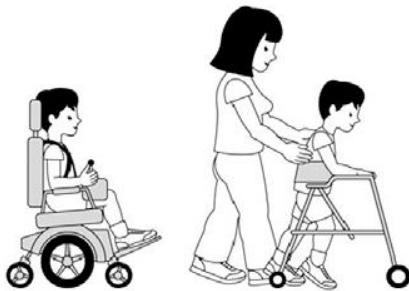
GMFCS Level II

Children walk in most settings and climb stairs holding onto a railing. They may experience difficulty walking long distances and balancing on uneven terrain, inclines, in crowded areas or confined spaces. Children may walk with physical assistance, a hand-held mobility device or used wheeled mobility over long distances. Children have only minimal ability to perform gross motor skills such as running and jumping.



GMFCS Level III

Children walk using a hand-held mobility device in most indoor settings. They may climb stairs holding onto a railing with supervision or assistance. Children use wheeled mobility when traveling long distances and may self-propel for shorter distances.



GMFCS Level IV

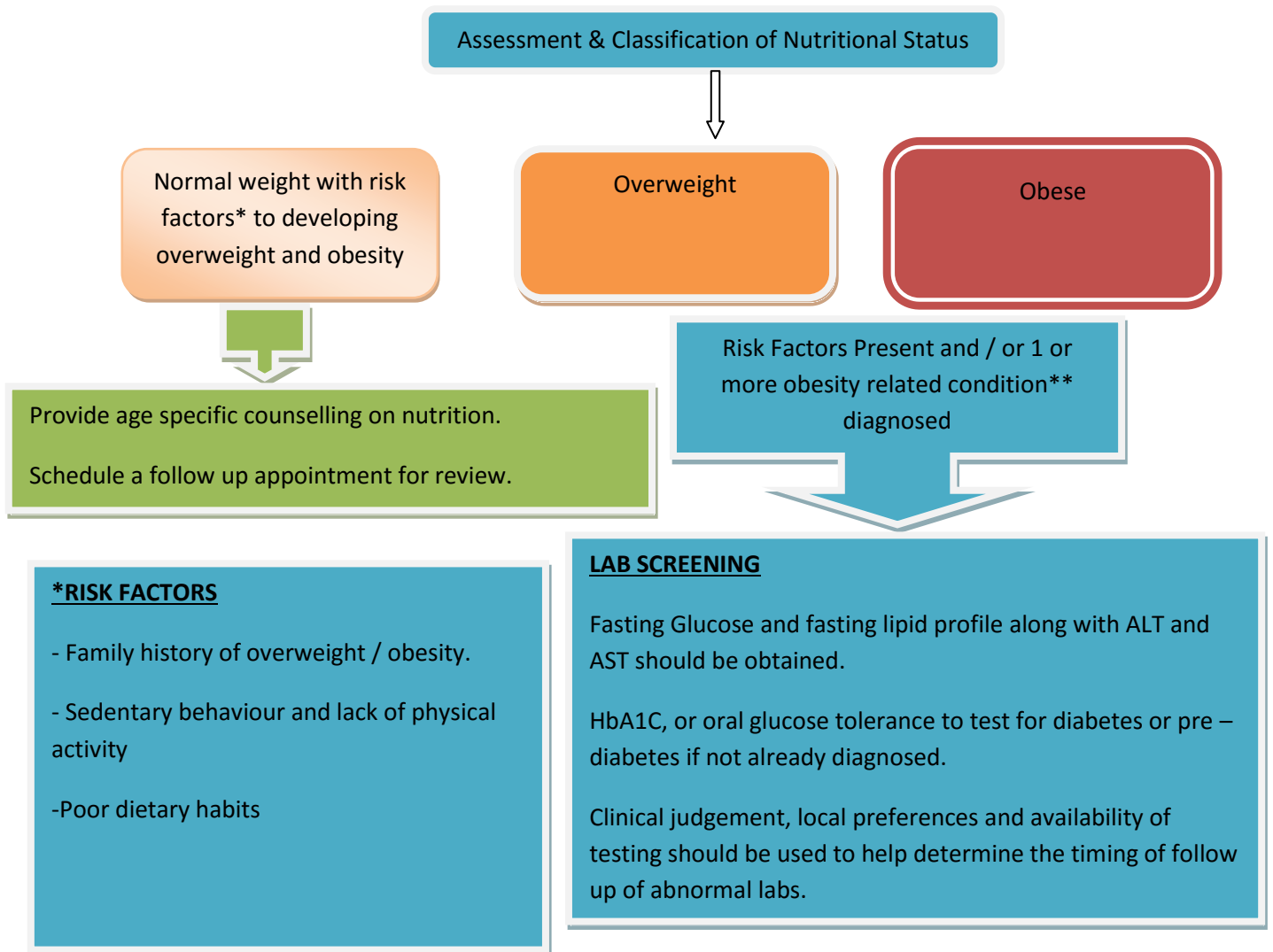
Children use methods of mobility that require physical assistance or powered mobility in most settings. They may walk for short distances at home with physical assistance or use powered mobility or a body support walker when positioned. At school, outdoors and in the community children are transported in a manual wheelchair or use powered mobility.



GMFCS Level V

Children are transported in a manual wheelchair in all settings. Children are limited in their ability to maintain antigravity head and trunk postures and control leg and arm movements.

Appendix 24: Algorithm for the assessment and management of childhood and adolescent obesity (0 – 18 years)



**The following conditions are associated with obesity and should be considered for further work up. In 2014, consensus statements from The Children’s Hospital Association described the management of a number of these conditions

Dermatological: Acanthosis nigricans; Hirsutism; Intertrigo

Endocrine: Polycystic ovarian syndrome; Precocious puberty; Prediabetes; Premature adrenarache; Type 2 Diabetes

Gastrointestinal: Cholelithiasis; Chronic Constipation; GERD; Nonalcoholic fatty liver disease

Neurological: Pseudomotor cerebri

Orthopaedic: Blounts Disease; Slipped capital femoral epiphysis

Psychological: Binge eating disorder; Depression

Appendix 25: CHW Tool for Home Visits / Follow up of children with MAM / SAM (English)

CHW Home visits for Children discharged with SAM / MAM:			
Name of Clinic		Name of CHW	
Date of visit			
Patient Information			
Patient's name		Date of birth (yyyy / mm / dd)	
Hospital (Admission)		Date of admission	
Mother's / Caregivers name		Mother's / Caregivers contact number	
Alternate contact		Alternative number	
Address(traceable address include ward number)			
What nutrition supplements was the child provided with on discharge?			
How are the supplements prepared and utilised?			
HOUSEHOLD ASSESSMENT			
Total number of people in household		Number of Children under 5 years	
Are the other children well?		How many of these children are NOT receiving a child support grant	
Is anyone in the household working: <i>....If No, what is source of income (to buy food)</i>			
Is anyone in the household working: Y/N <i>....If No, what is source of income (to buy food)</i>			
What are the living conditions in the house? <i>(cleanliness, number of rooms and people living in the house, access to clean</i>			



<i>water, access to flush toilets)</i>			
Problems identified in the household: <i>alcoholism/substance abuse/ absent parent, etc?</i>			
ADDITIONAL COMMENTS			
SCREENING OF CHILDREN UNDER 5			
Please screen other children in the house for SAM/MAM by doing a MUAC. <ul style="list-style-type: none"> <i>If MUAC < 12.5(yellow) to refer to clinic.</i> <i>If MUAC ≤ 11.5(red) to refer to Hospital (Via clinic or directly)</i> 			
Name of Child	MUAC in (cm) or green/yellow/red	Referred to clinic (Y/N)	Referred to hospital(Y/N)

This completed form must be handed over to the Operational Manager of the Clinic that the CHW reports to.

The Operational Manager should discuss on cases received on a weekly basis with the Nutrition Advisor for further action if necessary.

Date of Handover to OM: _____

Signature of OM: _____

Appendix 26: CHW Tool for Home Visits / Follow up of children with MAM / SAM (isiZulu)

ITHULI LIKANOMPILO LOKUYOHLOLA IZINGANE EMAKHAYA EZAZILALISELWE ISIFO SENDLALA (MAM/SAM)			
Igama lomtholampilo		Igama lika nompilo	
Usuku:			
IMINININGWANO YESIGULI			
Igama lesiguli		Usuku lokuzalwa (yyyy / mm / dd)	
UKULALISWA ESIBHEDLELA		Usuku owawulaliswe ngalo esibhedlela	
Igama lika mama noma onakekela ingane		Inombolo yocingo kamama noma eyomuntu onakekela ingane	
Enye inombolo yocingo mayikhona			
Ikheli lendawo ohla kuyo(othalakala kulo) Kanye newadi			
Ama-supplementi (ukudla) lawa atholwa ingane, alungiselelwa aphinde asetshenziswe kanjani?			
How are the supplements prepared and utilised?			
UCWANINGO LWASEKHAYA			
Inombolo yabantu abahlala ekhaya		Zingakhi izingane ezineminyaka eyisihlanu kuyaphansi ezihlala lapho endlini?	
Ngabe lezi ezinyeizingane ziyaphila noma zondlekile?		Zingakhi izingane ezingayitholi imali yeqolo?	
I Ukhona osebenzayo endlini? (yebo noma cha) <i>Uma engekho osebenzayo, ekhaya bakutholakanjani ukudla</i>			
Ukhona osebenzayo endlini (yebo noma cha) <i>Uma engekho osebenzayo,</i>			



<i>ekhaya bakutholakanjani ukudla?</i>			
Isimo sempilo ekhaya sinjani? <i>Ukuhlanzeka, mangakhi amakamelol nabantu abahlala endlini, akhona amanzi ahlanzekile, likhona ithoyilethi lasendlini</i>			
Izinkinga ozitholile ekhaya phakathi: <i>utshwala/izidakamizwa/abazali abakho. nokunye futhi?</i>			
EMINYE IMIBONO			
UKUHLOLWA KWEZINGANE EZINEMINYAKA EMIHLANI KUYA PHANSI			
Sebenzinsa u-MUAC ukuhlola isimo sokondleka kulezi ezinye izingane ezihlala endlini			
<ul style="list-style-type: none"> • Uma u-MUAC ungaphansi kuka 12.5 (umbala ophuzu) thumela umntwana emtholampilo • Uma u-MUAC ungaphansi kuka-11.1 (umbala obomvu) thumela umntwana esibhedlela (noma emtholampilo) 			
Igama lengane	MUAC ngama (cm) noma umbala wawo	Umntwana wathunyelwa emtholampilo (yebo noma cha)	Umntwana wathunyelwa esibhedlela (yebo noma cha)

Uma usuligcwalisile lelifomu lihambise kumphathi wasemtholampilo asebenzela khona.

Umphathi wasemtholampilo kumele axoxisane nomeluleki wezokudla ngeviki uma kunezinyathelo ekumelwe zithathwe.

Usuku:: _____

i-Signature kaMphathi womtholampilo: _____

Appendix 27: Referral Form to SASSA for children with malnutrition

The Local Office Manager
South African Social Security Agency

Area:.....

Code:.....

RE: REFERRAL FOR CONSIDERATION OF SOCIAL RELIEF OF DISTRESS (ZERO HUNGER PROGRAM) IN TERMS OF SECTION 13 OF THE SOCIAL ASSISTANCE ACT, NO. 13 OF 2004.

I, in my capacity as hereby refer the child with following details for consideration of social relief of distress in terms of section 13 of the Social Assistance Act, No 13 of 2004.

Name of parent/guardian:

Id number of parent/guardian:.....

Child's name:.....

Child's identity number:

Measurements of the child at the time of referral to SASSA						
Height		Weight		WHZ		MUAC
Physical development according to his/her age	Normal	Abnormal	If abnormal: specify			
Nutrition	Adequate	deficient	If deficient: specify			
Is Social relief of distress recommended	Not recommended		Recommended		Strongly recommended	

Relevant CHW in the area	Name of the CHW	Contacts of the CHW

Yours faithfully

DESIGNATION:

DATE:

CONTACT NUMBER:

Official Stamp

Appendix 28: SAM (Child under 5) Death Audit Summary Report

SAM Death (Child under 5) Audit Summary Report

Reporting quarter:	
Date:	
Hospital Name	
Paediatric Ward Operational Manager (Name and Signature)	
Dietitian (Name and Signature)	
Doctor (Name and Signature)	

NOTE

1. Please continue to update the same template for each quarter. Do not submit a new template for each quarter. Only deaths of children under 5 years diagnosed with severe acute malnutrition either at or during admission should be reported upon. The contributing factors for each death must be documented individually as outlined for April in the template below. The completed reports should be submitted for the respective quarter to nireshnee.reddy@kznhealth.gov.za as per timeframes below:

First Quarter	Due 15 July
Second Quarter	Due 15 October
Third Quarter	Due 15 January
Annual (Year End)	Due 15 April

INSTRUCTION

All deaths in children under 5 where severe acute malnutrition was diagnosed need to be included in this audit summary following the routine CHIPP / Death Audit.

Only a tick needs to be indicated if the column is relevant to the patient. Only for the last column does the actual medical condition need to be stated if applicable and for HIV positive children, indicate age of initiation on treatment.

MONTH	Age of Patient in Months	Total Number of SAM Deaths	Number of HIV + on treatment – successfully managed	Number of HIV+ not on treatment, late treatment or defaulted	Number of TB infected	Social Issues (documented in medical notes)	Number of cases linked to poor infant / young child feeding	Number of deaths related to sepsis or pneumonia or diarrhoea	Number of cases linked to herbal medicine ingestion	Number of deaths within the first 48 hours of admission	Number of deaths due to other chronic medical condition
April											
Patient 1:											
Patient 2:											
General Comment											
May											
June											



DEFINITIONS OF VARIABLES

- Age : the age in years and months of the child at the time of death
- HIV + on treatment successfully managed: A child who is known to be HIV positive and on treatment at the time of admission. The medical history should indicate that the child is on first line treatment and adherent. Indicate age of initiation on treatment.
- HIV+ not on treatment, late treatment or defaulted: A child who is found to be positive during the hospital stay. A child who was on treatment and defaulted.
- TB infected – a child who tested positive for TB. Indicate if child defaulted on TB treatment prior to admission.
- Neglect / abandonment / abuse (documented in medical notes): A child where neglect, abandonment or abuse is documented in the medical notes by a doctor or social worker. Children not receiving a social grant.
- History of poor infant / young child feeding: The medical notes / feeding history indicate inadequate or inappropriate feeding before 6 months of age. Complementary feeding started before 6 months. Inadequate or inappropriate complementary feeding at 6 months of age.
- Sepsis, pneumonia or diarrhea: The medical notes indicate diagnosis of sepsis, pneumonia or diarrhea on admission or developed during admission.
- Herbal medicines ingestion: The medical notes indicate ingestion of traditional herbal enemas or medicines.
- Death within first 48 hours: The time of death occurs within 48 hours of admission into the health facility. i.e. the time measured between OPD / Casualty admission and time of death.
- Presence of other chronic medical condition: The medical notes indicate the presence of a chronic medical condition e.g. cerebral palsy