

breastmilk since breastmilk alone is no longer sufficient to satisfy the infant's energy, protein and micronutrient needs. **Continued breastfeeding** is recommended through 2 years.

Illness

Acute respiratory infection (ARI), mostly in the form of pneumonia, is a leading cause of death in children under five. Children with malnutrition or measles are particularly susceptible to pneumonia.

Diarrhea is the second most common cause of death in children under five worldwide, killing children through dehydration and malnutrition. Diarrhea is prevalent where there is unsafe disposal of feces, poor hygiene practices, unclean drinking water, and where infants are not breastfed. Nevertheless, its deadly effects can be prevented in most cases through **oral rehydration solutions (ORS)**, **recommended home fluids (RHF)** and **increased fluid intake**.

Interventions

Small amounts of iodine are essential for growth and development. Iodine deficiency can cause goiter, spontaneous abortion, premature birth, infertility, stillbirth, increased child mortality, mental retardation and cretinism. Children with iodine deficiency can also grow up stunted, apathetic and incapable of

normal movement, speech or hearing. Regular small amounts of iodine are needed throughout a lifetime, and **iodizing salt** is one of the most effective ways to achieve this. It is viewed as a national public health problem when less than 60% of households have iodized salt.

Over the age of six months, children should receive **vitamin A supplements** to prevent deficiency.

Malaria is very dangerous for pregnant women, causing severe anemia, low birth weight, miscarriage, premature birth or stillbirth and resulting in children more prone to be underweight and more vulnerable to infection and death. Pregnant women should take recommended **antimalarials** during pregnancy, and **bednets** should be slept under to prevent bites.

Measles is a major cause of malnutrition, diarrhea, poor mental development, immune suppression and hearing and visual impairments. Infants are only temporarily protected by their mother's measles antibodies acquired while in the womb. Hence, children between 12 and 23 months should be **vaccinated for measles**.

¹Pelletier, D.L., E.A. Frongillo, Jr., D.G. Schroeder, and J.P. Habicht. 1994. "A methodology for estimating the contribution of malnutrition to child mortality in developing countries." *Journal of Nutrition* 124 (10 Suppl.):2106S-2122S



Nutrition in East & Southern Africa



photo by Annie Cross

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A discussion of the indicators and their importance follows...

Prevalence of Malnutrition

Contributing to **under-five mortality** and morbidity, undernutrition, even when mild, compromises child health by stunting growth and making children more susceptible to illness and death. A formula has been developed that quantifies the contributions of mild to moderate and severe malnutrition to under-five mortality¹.

Low birth weight (LBW) is a proxy indicator of a baby's health status. Infants born with LBW often face higher morbidity and mortality risks. It is also a consequence of poor maternal nutritional status.

Stunting is a measure of chronic malnutrition resulting from inadequate intake of food over a long period that may be exacerbated by chronic illness.

Wasting is a measure of acute malnutrition resulting from a recent failure to receive adequate nutrition that may be a result of acute illness, especially diarrhea.

Underweight is another measure of malnutrition resulting from either chronic or acute malnutrition or a combination of both.

Overweight is also a measure of malnutrition, resulting from

overconsumption of energy-dense, nutrient-poor foods often with high levels of sugar and saturated fats, combined with inadequate physical activity.

Women who are **too short** (a condition of malnutrition largely due to stunting during childhood and adolescence) may have difficulty during childbirth because of small pelvis size. Additionally, short stature is also a significant risk factor for low birth weight babies.

Body mass index (BMI) is used as an index of relative weight that demonstrates whether a woman is underweight, overweight or normal weight for her height.

Low BMI represents early child stunting or more acute undernutrition in adulthood. The likelihood of a LBW baby is increased with low BMI mothers.

High BMI, or overweight (≥ 25) and obesity (≥ 30), in women is due to overconsumption of energy-dense, nutrient-poor foods and inadequate physical activity. It poses a major risk for chronic diseases, including type 2 diabetes, cardiovascular disease, hypertension and stroke, and certain forms of cancer.

Night blindness during pregnancy can indicate acute **vitamin A deficiency (VAD)** in both women and children. VAD in children is the leading cause of childhood blindness. Additionally, children with VAD are less likely to recuperate from illness and are more likely to die as children who do not have VAD.

Anemia, a lack of **iron** (low blood hemoglobin), can be caused by an iron-poor diet, parasites, malaria and hookworm. It is implicated in decreased cognitive development in children, limiting chances of child survival, and decreased work capacity in adults. Severe cases are associated with low birth weight and perinatal mortality. In pregnancy, anemia increases the severity of hemorrhage and risk of infection during birth and is therefore a significant cause of maternal morbidity and mortality.

Feeding

If a mother **initiates breastfeeding** immediately after birth, the breastmilk production is stimulated. It also helps the mother's uterus contract, reducing the risk of heavy bleeding and infection. Colostrum, the milk produced in the first few days after birth, is very nutritious and rich in antibodies, helping to protect the baby against infection.

Children should be **exclusively breastfed** for the first six months of life. Too early introduction of foods and liquids, and food prepared under unhygienic conditions can result in undernutrition and infection for the baby. It could also limit the duration of the mother's postpartum amenorrhea and result in too short spacing between births.

Complementary food should be given from the sixth month of life in addition to

East and Southern African Indicators

¹Surveys included children 0-35 months only

²Mothers (not all women)

³25+ ppm

⁴15+ppm

⁵All women 15-49

⁶Percent children with EITHER fever or ARI who were taken to a health provider

⁷Listened to the radio at least once a week



photo by Sri Poedjastoeti

Chad 1996-97

Eritrea 2002

Ethiopia 2000

Kenya 1998¹

Madagascar 1997¹

Malawi 2000

Mozambique 1997¹

Rwanda 2000

Tanzania 1999

Uganda 2000-01

Zambia 2001

Zimbabwe 1999

Prevalence of Malnutrition (%)

Children < 5 years, percent of deaths to which malnutrition contributes	52	54	57	32	54	37	44	37	40	34	42	24
Children <3 years who had low birth weight (<i>World Health Indicator</i>)	15	11	13	9	15	13	13	8	11	11	11	10
Children < 5 years who are stunted (< -2 SD, height for age)	40	38	51	31	48	49	36	42	43	39	47	27
Children < 5 years who are wasted (< -2 SD, weight for height)	14	13	11	7	8	6	9	7	5	4	5	6
Children < 5 years who are underweight (< -2 SD, weight for age)	39	40	47	22	40	25	26	25	29	23	28	13
Children < 5 years who are overweight (> +2 SD, weight for height)	2	<1	1	5	2	4	4	4	2	3	3	7
Women 15-49 years who are considered short (< 145 cm)	<1	2	4	1 ²	8 ²	3	5	3	-	2	2	2
Women 15-49 years with low BMI (< 18.5)	21	37	30	12 ²	21 ²	9	11	9	-	10	15	6
Women 15-49 years with high BMI (≥ 25)	5	9	3	15 ²	4 ²	12	10 ²	13	-	14	12	27
Mothers 15-49 years with night blindness, most recent pregnancy (<i>adjusted</i>)	-	4	5	-	3	1	-	4	-	1	-	1
Children 6-59 months with anemia	-	-	-	-	74	-	-	-	-	64	-	-
Women 15-49 years with anemia	-	-	-	-	42 ²	-	-	-	-	28	-	-
Men 15-54 years with anemia	-	-	-	-	-	-	-	-	-	18	-	-

Feeding (%)

Infants (< 5 years) put to breast one hour or less after birth	24	78	52	58	34	72	81	48	-	32	51	63
Infants <6 months exclusively breastfed	2	51	50	12	45	42	28	77	30	59	39	31
Breastfed infants 6 to 9 months receiving complementary foods	66	40	40	83	83	83	75	72	57	69	81	83
Children 18-23 months still breastfeeding	58	62	74	52	52	68	60	58	57	46	55	43
Children < 3 years, median duration of breastfeeding (in months)	21	22	26	21	21	24	22	33	21	22	21	20

Illness (%)

Children <5 years with ARI in the last two weeks (<i>cough with rapid breathing</i>)	13	19	24	20	24	27	12	21	14	23	15	16
Children <5 years with diarrhea in the last two weeks	22	13	24	17	27	18	21	17	12	20	21	14

Interventions (%)

Households with any iodized salt	62	74	28 ³	-	79	53 ⁴	-	91 ⁴	67 ³	95 ⁴	80 ⁴	-
Children 6-59 months who received vitamin A supplementation in the last 6 months	<1	38	60	-	2	71	-	69	13	38	67	-
Mothers of children <5 years who received vitamin A supplementation within 2 months after delivery	-	13	12	-	-	42	-	14	11	11	28	-
Mothers of children <5 years who received any iron supplementation during their most recent pregnancy	-	40	-	-	-	67	-	21	44	51	62	60
Children 12-23 months who received measles vaccination coverage (<i>opportunity to give vitamin A to children</i>)	23	84	27	79	46	83	58	87	78	57	84	79
Mothers of children <5 years who received malaria prophylaxis (<i>any drug</i>) during their most recent pregnancy	-	5	5	-	-	68	-	8	32	34	36	23
Children <5 years who used a bednet the previous night	-	12	-	-	-	8	-	79	25	7	16	3
Pregnant women 15-49 years who used a bednet the previous night	-	7	-	-	-	8 ⁵	-	-	-	7	17	-
Children <5 years who had diarrhea and received oral rehydration solution, recommended home fluids or increased fluids	67	69	45	82	66	62	62	30	68	53	67	80
Children <5 years with ARI who were taken to a health facility	19	44	16	57	37	27	39	15	68 ⁶	65 ⁶	69	50
Gross Attendance Ratio - Children attending primary school as a % of the official primary-school-age population (<i>opportunity to give nutritional education to children and improve girls' education</i>)	-	101	60	-	-	110	-	106	-	119	91	107
Media use - Men who listen to the radio every day (<i>opportunity to reinforce good health and nutritional habits</i>)	39	-	24 ⁷	81	-	70 ⁷	40	64 ⁷	45 ⁷	75 ⁷	65 ⁷	56
Media use - Women who listen to the radio every day (<i>opportunity to reinforce good health and nutritional habits</i>)	23	71 ⁷	11 ⁷	58	40	52 ⁷	27	39 ⁷	28 ⁷	53 ⁷	44 ⁷	43