

ACUTE MALNUTRITION

A Preventable Pandemic



Measuring for the Weight/Height Index



Measuring the middle upper arm circumference (MUAC)

WHAT IS ACUTE MALNUTRITION?

Acute malnutrition is a devastating disease of epidemic proportions. Worldwide, some 55 million children age 5 or younger suffer from moderate acute malnutrition and 19 million are afflicted with severe acute malnutrition—the most dangerous type of hunger.¹ Each year, some 5 million of these children die because they lack access to treatment.² These deaths are entirely preventable.

Childhood acute malnutrition is as much a medical problem as it is a social problem because it directly affects a broad range of issues: a country's mortality rates, educational prospects, productive employment, and economic capacity, etc. Malnutrition also happens to be one of the principal mechanisms behind the transmission of poverty and inequality from one generation to the next. These devastating consequences also carry a heavy economic cost: it is estimated that productivity losses alone exceed 10% of a person's lifetime income, and up to 3% of a country's GDP.

Acute malnutrition in children under five years of age increases their risk of death, inhibits their physiological and mental development, has life-long implications for their health, and heavily mortgages the opportunities available to future generations.

DIAGNOSING MALNUTRITION

A DIMINISHED WEIGHT/HEIGHT INDEX

- A weight/height measurement below 20% of the mean indicates moderate acute malnutrition.
- A weight/height measurement below 30% of the mean indicates severe acute malnutrition.

PRESENCE OF BILATERAL EDEMAS

An abnormal accumulation of liquid in one's extremities.

MIDDLE UPPER ARM CIRCUMFERENCE

An anthropometric measure frequently used during emergencies is the measurement of a child's upper arm—the MUAC, or Middle Upper Arm Circumference. Anything less than 12.0 centimeters indicates a child's life is in danger from acute malnutrition.

¹ The Lancet: Maternal and Child Undernutrition Series paper 1 January 2008

² Pelletier DL. The relationship between child anthropometry and mortality in developing countries: implications for policy, programs and futures research. *N Nutr* 1994 (supple): 2047S-81S



Diagnosing a child with acute malnutrition



Marasmus, a type of severe acute malnutrition

TYPES OF ACUTE MALNUTRITION

Acute malnutrition takes place when the body doesn't receive the nutritional support it requires, a condition to which it adapts by reducing physical activity and slowing the processes involved in proper organ function and cell and tissue maintenance. Regular nourishment enables human beings to secure the energy their bodies require for the proper functioning of their vital organs. Malnutrition occurs when the body has spent its energy reserves. The body begins to consume its own tissues in search of the nutrients and energy it needs to survive, targeting muscle and body fat first. The body's metabolism begins to slow, thermal regulation is disrupted, kidney function is impaired, and immune system capacity is diminished. The greater the loss of muscle and other tissue, the less likely the chances of survival. What happens next?

Moderate Acute: Moderate acute malnutrition affects a greater number of children and has a greater impact on morbidity. It is accompanied by crucial deficiencies such as anemia (from a lack of iron), goiter (from a lack of iodine), and xerophthalmia (from a lack of vitamin A), as well as scurvy, pellagra, beriberi (from a lack of vitamin B), and rickets (from a lack of vitamin D).

Severe Acute: The most severe form that malnutrition can take, severe acute malnutrition can manifest in two ways:

- **Marasmus:** Marasmus is characterized by a massive loss of weight and muscle tissue. Due to the disequilibrium experienced in weight and height, children suffering from Marasmus look almost elderly and their bodies are skeletal. At this point, their bodies' vital processes are compromised: their metabolism has slowed, thermal regulation is disrupted, intestinal absorption and kidney function are diminished, the liver's capacity to synthesize proteins and eliminate toxins is reduced, and the immunological system doesn't function properly, which means less resistance to illness and disease. At this stage, even if the child manages to survive its bout with Marasmus, the damage is done and the deficiencies sustained from the disease can never be overcome.
- **Kwashiorkor:** The term "kwashiorkor" comes from a Ghanaian word that means "the sickness the older child gets when the new child is born." Its principal characteristic is the presence of bilateral edemas on the extremities and on the face (a full-faced child). Underneath these edemas, the muscles have been severely weakened, causing excruciating cramping and muscle pain. As is the case with Marasmus, children with Kwashiorkor suffer from significant damage to the functioning of their internal systems.

WHAT CAUSES ACUTE MALNUTRITION?

STRUCTURAL FACTORS

POVERTY During the last two decades, extreme poverty in Sub-Saharan African has nearly doubled, from 164 million in 1981 to some 313 million as of 2002. Poverty alone does not explain the presence of famine, although it does affect the state of food security among the most vulnerable of populations.

GENDER The benefits stemming from the education of women constitutes the single greatest contribution to the reduction of malnutrition from 1970 through 1995, accounting for 43% of all progress made. Women, after children, are the most susceptible to the ravages of hunger.

CLIMATE CHANGE During the 1990s, it is estimated that natural disasters were responsible for \$600 million dollars in losses each year, more than twice the losses reported during the 1980s. According to the UN's Food and Agriculture Organization (FAO), in nearly 40 developing countries, the losses in agricultural production attributed to climate change could dramatically increase the estimated number of people suffering from hunger in the near future.

TRADE POLICY The major food crises that have recently buffeted Sub-Saharan Africa stem from a lack of access to food, not a lack of availability (i.e., the markets are full, but prices are too high and the poor don't eat). Prices have remained high because much of what is produced domestically is exported while the economic powers that control the cereal markets have colluded to keep prices high.

HIV & AIDS HIV and AIDS have become one of the primary causes—and consequences—of malnutrition. An HIV positive child has a greater chance of contracting malnutrition than his healthier counterparts. Moreover, anti-retroviral treatments do not perform as well on malnourished children, and life expectancy is considerably shorter for patients who lack proper diets.

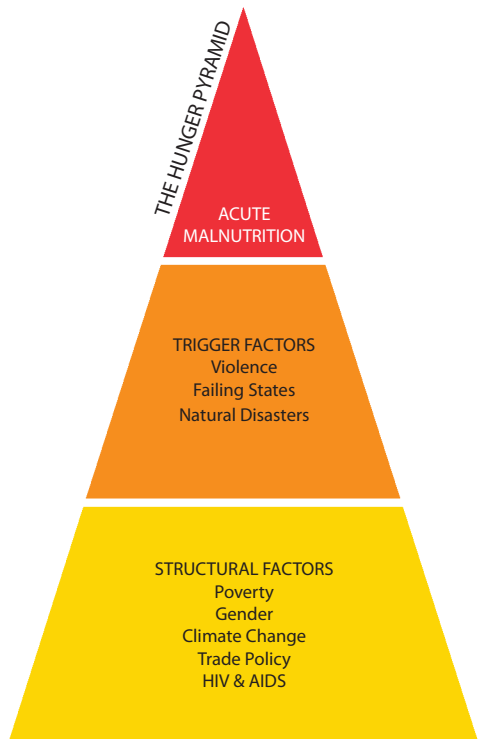


TRIGGER FACTORS

VIOLENCE Violence is one of the principal causes of acute malnutrition. The disruption of food production and distribution networks, whether a deliberate military objective or the consequence of armed conflict, violence is one of the primary causes of severe food shortages, and therefore of acute malnutrition.

FAILING STATES Somalia is one of the more enduring and costly examples of the types of crises that can be triggered by the failing of state structures. The faltering of state structures, the absence of basic services, the complete breakdown of public health infrastructure and sanitation systems, have all imposed tremendous suffering on a population with one of the highest rates of chronic malnutrition in the world.

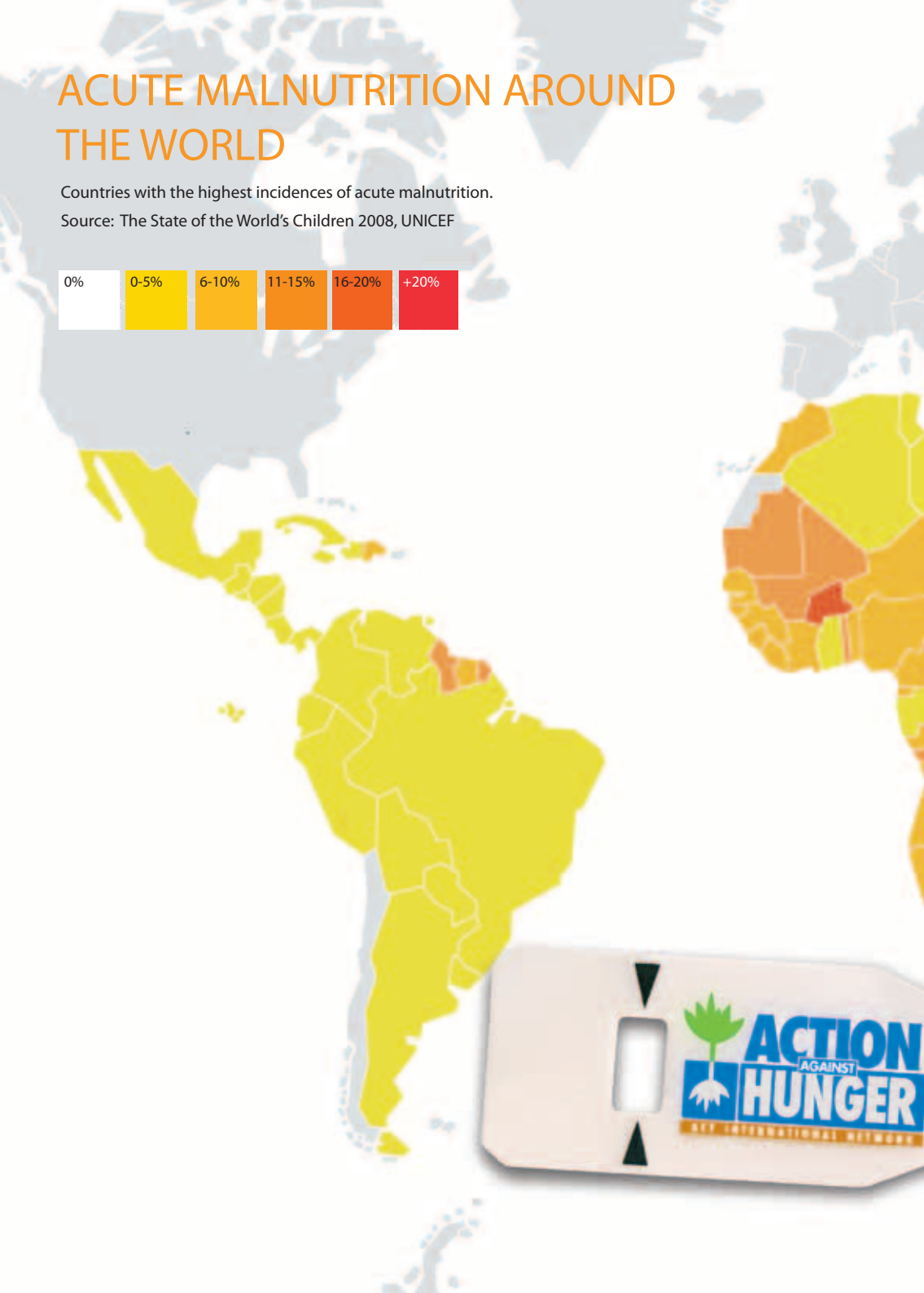
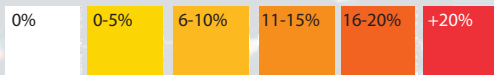
NATURAL DISASTERS When natural disasters affect geographic areas with poor structural stability, their impacts can be devastating, often with little relation to the actual magnitude of the natural phenomenon. Less visible forms of destruction—of productive assets and capacity—often constrain vital supply networks with far more serious consequences than the direct impact of a natural disaster on physical infrastructure.



ACUTE MALNUTRITION AROUND THE WORLD

Countries with the highest incidences of acute malnutrition.

Source: The State of the World's Children 2008, UNICEF





This measuring tape is used to measure a child's middle upper arm circumference, a key estimate in determining child's state of malnutrition and risk of death.

DIAGNOSING SEVERE ACUTE MALNUTRITION

A

- Child has no appetite
- Has major medical complications
- At least 3 cases of bilateral edema pitting (Kwashiorkor)

B

- Child exhibits appetite
- No major medical complications
- Fewer than 3 cases of bilateral edema pitting (Kwashiorkor)

THERAPEUTIC INPATIENT CARE “HOSPITAL TREATMENT”

PHASE 1

Administration of therapeutic milk formula F-75 to jumpstart a child’s metabolism and restore hydroelectric equilibrium.

TRANSITION I

Administration of the formula F-100 until the metabolism stabilizes foods can be introduced

TREATMENT & PREVENTION: How is Acute Malnutrition Addressed?

With 30 years of international experience, Action Against Hunger tackles acute malnutrition through Community-Based Care outpatient programs (“home treatment”), through Stabilization Centers (“hospitals”), and through the development of new Ready-To-Use-Foods (RUFs)—both therapeutic and non-therapeutic nutrition products that children can readily eat any time or place.

Until fairly recently, children receiving treatment for acute malnutrition would recuperate in intensive-care inpatient facilities called “Therapeutic Feeding Centers,” hospital-like centers where they would remain with a parent or caretaker during their month-long treatment. The shift toward “Community-Based Care” programs, led by Action Against Hunger and other international organizations, allows us to dramatically scale up coverage, and implies a revolutionary change in the fight against malnutrition.

The Advantages of Ready-To-Use-Foods (RUFs):

- RUFs allow for a massive scaling-up of treatment and prevention programs.
- RUFs allow for increased coverage and broader access to treatment.
- RUFs reduce the social costs associated with inpatient treatment, allowing parents to treat a child at home without leaving the family or forgoing income during treatment.

READY-TO-USE-FOODS

A range of revolutionary Ready-To-Use-Foods (RUFs) have been developed in the form of peanut-butter pastes and biscuits that are nutrient-rich and packed with high concentrations of energy and calories. These nutrition products reduce exposure to water-borne bacteria because they contain no water content and require no dilution, reducing the risk of exposure to unclean water. RUFs require no refrigeration, and no heating or preparation, all of which ensure that vitamins and nutrients aren’t lost by the time they are consumed—not to mention the fuel savings for poorer households.

These products are transforming the treatment and prevention of acute malnutrition: their potential for scaled up humanitarian action, for safe treatment at home, and their effectiveness in the field—a minimum cure rate of 80%—could spell the end of acute malnutrition as we know it.



THERAPEUTIC OUTPATIENT CARE "HOME TREATMENT"

PHASE 1

Therapeutic milk
to the child's
and solid
foods.

PHASE 2

Administration of therapeutic RUFs along with doses of antibiotics, vitamin A, anti-parasite and anti-malaria medicines, and measles vaccinations.

POST TREATMENT

Children treated for acute malnutrition are enrolled in supplementary nutrition programs for an additional four months to ensure total recovery.

The treatment of acute malnutrition consists of 3 components:

COMMUNITY MOBILIZATION: "HOME VISITORS"

To achieve maximum program coverage, resources must be focused on mobilizing a large number of community volunteers who work directly with Action Against Hunger's field teams of home visitors. These teams are responsible for identifying early cases of childhood malnutrition so that timely interventions can keep them from deteriorating further.

THERAPEUTIC INPATIENT CARE: "HOSPITAL TREATMENT"

PHASE ONE + TRANSITION PHASE

Children with no appetite and serious medical complications are admitted into specialized treatment centers, or hospitals. These children represent about 10-20% of severe acute cases.

Once under hospital supervision, these children undergo two phases of treatment. Phase One involves the administration of a specialized milk formula, F-75, a therapeutic nutritional product with a low calorie load designed to jumpstart a child's metabolism and restore hydroelectric equilibrium. This phase is followed by a Transition Phase in which another milk formula (F-100) is administered until the child's metabolism stabilizes and solid foods can be introduced.

Once they have recovered their appetites and received treatment for their medical complications these children are referred to the outpatient programs ("home treatment") to continue their regimen, beginning Phase Two. The average stay in a hospital setting varies between 10 to 15 days, depending on each child's medical recovery.

THERAPEUTIC OUTPATIENT CARE: "HOME TREATMENT"

PHASE TWO

Children who suffer from severe acute malnutrition but who are otherwise clinically stable—i.e., present no major medical complications, exhibit fewer than three cases of edema pitting, and who still possess an appetite—are admitted directly into Phase Two and treated in community-based outpatient programs. These children receive medical supervision during weekly visits to therapeutic stabilization centers where medical staff evaluate their progress and provide them with the weekly supply of therapeutic RUFs needed to continue their home treatment—along with doses of antibiotics, vitamin A, anti-parasite and anti-malaria medicines, and measles vaccinations. The average treatment period lasts about a month and a half but depends on each child's progress.

ACTION AGAINST HUNGER

Action Against Hunger firmly believes it's possible to put an end to acute malnutrition. Acute malnutrition in children under five years of age increases their risk of death, inhibits their physiological and mental development, has life-long implications for their health, and greatly limits the opportunities available to future generations. Children with acute malnutrition today are the poor of tomorrow.

In 2000, 189 countries ratified the United Nations' eight Millennium Development Goals. Eight years later, global hunger, acute malnutrition, and child mortality rates remain as some of the more urgent challenges confronting the international community.

The Millennium Development Goals of reducing global hunger by half and childhood mortality by two thirds cannot be realized without prioritizing acute malnutrition.

No country can afford to squander their most precious of resources—their human capital. Nutritional improvements reinforce a population's productive capabilities, with direct implications for the process of development and poverty rates.

How can we expect to build for the future if millions of people around the world begin life without hope or the possibility of prospering?

ACF'S POLICY RECOMMENDATIONS

- Treatment strategies for acute malnutrition must receive priority within public policy, facilitating systematic treatment and access to RUFs.
- Prevention and risk-reduction programs must be integrated into treatment programs, guaranteeing that underlying causes are addressed.
- Retool the international humanitarian system to prioritize acute malnutrition: Food aid pipeline strategies, the UN's nutritional support, national nutrition protocols, must all emphasize putting an end to acute malnutrition.

Community-based nutrition education.



Treatment of severe acute malnutrition.



ACTION AGAINST HUNGER'S EFFORTS IN THE FIGHT TO END ACUTE MALNUTRITION

Each day, hundreds of professionals around the world work to reduce the number of children who die from acute malnutrition, addressing this issue from a number of vantage points:

Identification and Diagnosis

- Analyzing the nutritional context, the causes and risk factors behind malnutrition.

Treatment and Nutritional Care

- Through home treatment, community mobilization, and supplemental nutrition programs for vulnerable groups, such as populations burdened with HIV/AIDS or Tuberculosis.

Prevention and Risk Reduction

- In every axis of intervention: in food security, in productive entrepreneurship, public health and access to water, hygiene, and sanitation.

Strengthening Capacity and Sustainability

- Integrating the fight against malnutrition into Ministry of Health programs and public health structures so they are sustainable over time;
- Transferring our know-how and expertise to

local organizations and building alliances for the long term.

Research and Innovation

- Continually striving to improve the quality and impact of our work.

Political Empowerment

- Communicating through outreach campaigns and coordinated activities that acute malnutrition—the greatest cause of infant mortality—is fully preventable.
- Promoting access to treatment through strategies of community-based nutrition programs.
- Pushing for innovation through the research and development of therapeutic and non-therapeutic RUFs.



The Action Against Hunger International Network has launched the Campaign to End Malnutrition, a public outreach effort to ensure that the fight against hunger becomes the world's first priority.





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