

# Children's Health and Nutritional Status

A new look at data from the  
2005 Ethiopia Demographic and  
Health Survey  
(EDHS)



The 2005 EDHS was conducted under the sponsorship of the Ministry of Health and implemented by the then Population and Housing Census Commission Office (PHCCO) now merged with the Central Statistical Agency (CSA). The Ethiopia Health and Nutrition Research Institute (EHNRI) tested blood samples for HIV status.

Macro International Inc., under the MEASURE DHS program, provided technical assistance in the design, implementation and analysis of the survey with funding from the U.S. Agency for International Development (USAID).

Funding for the survey was provided by the Government of Ethiopia, the United States Agency for International Development (USAID), the Dutch and Irish Governments, United Nations Population Fund (UNFPA), and the United States President's Emergency Plan for AIDS Relief.

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# About the Survey

## **2005 Ethiopia Demographic and Health Survey**

The 2005 Ethiopia Demographic and Health Survey (EDHS) is the second in a series of national surveys conducted in Ethiopia. It is designed to measure levels, patterns, and trends in demographic and health indicators.

In the 2005 EDHS, a nationally representative sample of 14,070 women and 6,033 men from 13,721 households were interviewed. Overall, 96 percent of women and 89 percent of men who were selected in the sample agreed to be interviewed. This sample provides estimates for Ethiopia as a whole, for urban and rural areas of the country, for each of the nine regions, and for the two Administrative Council Areas of Addis Ababa and Dire Dawa.

The Ethiopia DHS provides data on fertility, family planning, maternal and child health, nutrition, malaria, HIV, and women's status. The background characteristics of women and men are also collected, allowing their health and demographic indicators to be compared to their age, residence, wealth, and educational level.

Women interviewed in the EDHS were asked questions about the health of their young children (those under five). This booklet looks exclusively at children's health and nutritional status in Ethiopia.

# Introduction

Ethiopia has made remarkable progress in childhood vaccination coverage in the last five years. Children are also better nourished today than they were five years ago and childhood mortality has declined sharply. Despite the progress in child health and nutrition, four in five children are not fully vaccinated against the six major causes of childhood deaths and one in eight children dies before their fifth birthday. Children in Ethiopia are least likely to be fully vaccinated when compared with children in Rwanda, Uganda, Eritrea, Tanzania, and Kenya.

Data from the 2005 EDHS provide the current health and nutritional status of children in Ethiopia, and, together with data from the 2000 EDHS, trace changes over the last five years.

The discussion focuses on several areas of importance: nutritional status of children; vaccination coverage; the prevalence and treatment of fever; acute respiratory infection (ARI) and diarrhoea; and childhood mortality.

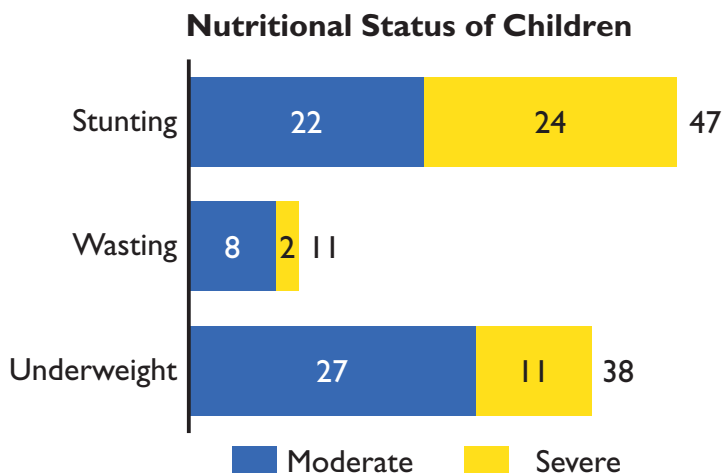
# Nutritional Status of Children

Child malnutrition continues to be a major public health problem in developing countries. Nutritional status is primarily determined by a child's growth in height and weight and is directly influenced by food intake and the occurrence of infections. Chronic (stunting) and acute (wasting) malnutrition and general health and nutritional status (underweight) are assessed at the population level through the Demographic and Health Surveys.

In Ethiopia, almost half of all children under the age of five are stunted – that is, they are too short for their age, with one fourth of children being severely stunted. Stunting reflects a failure to receive adequate food intake over a long period of time, and is, therefore, a measure of chronic malnutrition.

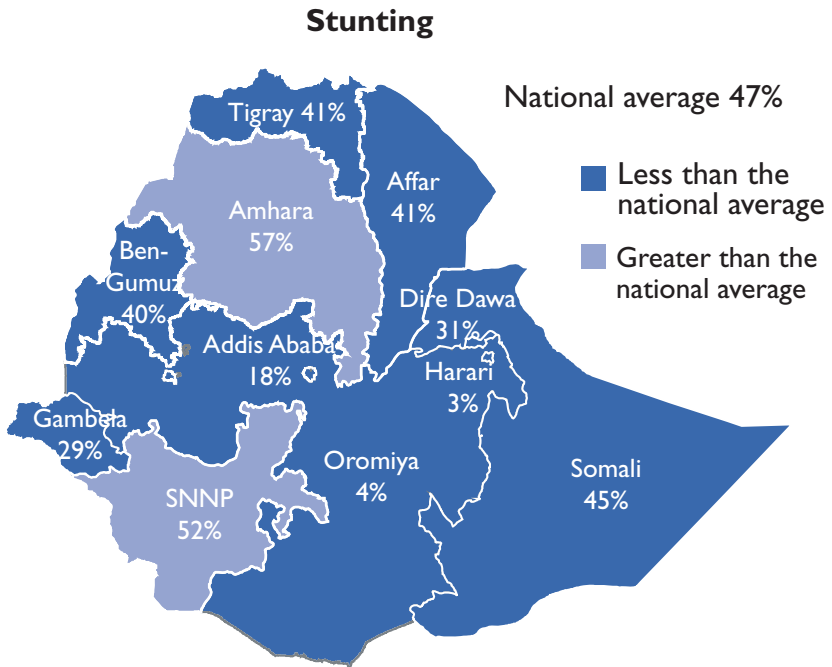
One in ten children under five years is wasted – that is, they are too thin for their height. Wasting reflects the failure to receive adequate nutrition in the period immediately preceding the survey. It is considered a measure of acute malnutrition. Two-fifths of children age five and under are underweight – that is, they are too thin for their age. Underweight is a composite indicator combining both chronic and acute malnutrition.

**Half of all Ethiopian children are chronically malnourished**



*Percent of children under 5 years*

Chronic malnutrition affects children across the country. The highest rates of stunting are found in Amhara and SNNP. Children living in rural areas are more likely to be stunted than children living in urban areas (48 percent vs. 30 percent). In addition, children of mothers with no education are twice as likely to be stunted as children of mothers with a secondary education or higher (49 percent vs. 24 percent).

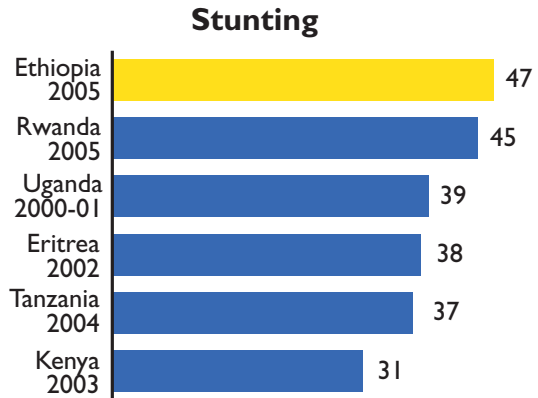


*Percent of children under five years whose height-for-age is more than two standard deviation units below the median of the reference population*

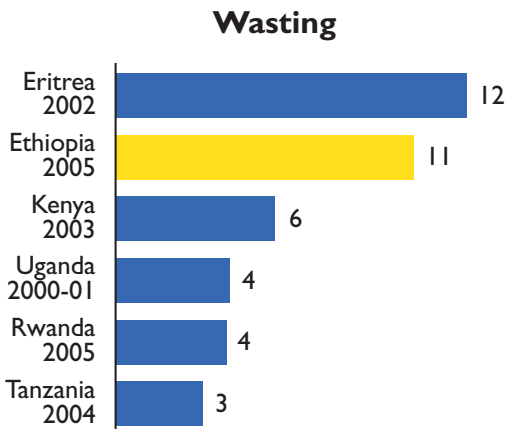
Stunting has decreased only slightly since 2000 (from 52 percent to 47 percent). There was no change in the percentage of children wasted during the same period. The percentage of children underweight has decreased more dramatically, from 47 percent to 38 percent in the past five years.

# Nutritional Status of Children, continued

Rates of stunting – or chronic malnutrition – are higher in Ethiopia than in other countries in the region. Almost half of children in Ethiopia are too short for their age, compared with one-third of children in Kenya. Although the rate of stunting in Ethiopia has decreased over the past five years, it remains one of the highest levels of chronic malnutrition in the world.



*Percentage of children under age 5 who are too short for their age*



*Percentage of children 0-59 months who are too thin for their age*

Although rates of wasting – or acute malnutrition – are lower in Ethiopia than they are in Eritrea, they are significantly higher than in other countries in the region for which data are available. Wasting rates in Ethiopia are twice that of Kenya and almost three times that of Uganda, Rwanda, and Tanzania.

Overall, these data show that, in spite of improvements in the past five years, the nutritional status of the children of Ethiopia lags behind the other countries in the region.



# Infant and Young Child Feeding

UNICEF and WHO recommend that children should be exclusively breastfed—fed only breast milk with no other liquids (including water) or food—on demand for the first six months of life. Based on the WHO guiding principles for feeding breastfed and non-breastfed children, complementary feeding of children age 6-23 months is reflected by the Infant and Young Child Feeding (IYCF) practices indicator. The three IYCF practices are: continued breastfeeding or feeding with appropriate calcium-rich foods if not breastfed; feeding solid or semi-solid food for a minimum number of times per day according to age and breastfeeding status; and, including foods from a minimum number of food groups per day according to breastfeeding status.

Breastfeeding is nearly universal in Ethiopia — 96 percent of children are breastfed, with 86 percent breastfed within 24 hours of birth. The average length of breastfeeding is 26 months.

Contrary to international recommendations, however, only 49 percent of children under the age of six months are exclusively breastfed, while the average length of exclusive breastfeeding is only 4 months. In addition, only 22 percent of children 6-23 months are fed according to the recommended three IYCF practices\*.



(c) 2005 Virginia Lamprecht, Courtesy of Photoshare

\* IYCF data are not included in the 2005 EDHS. Analysis of this new indicator was carried out by Macro International Inc. in March 2007.

# Micronutrient Intake and Anaemia

Micronutrient deficiency is a serious contributor to childhood morbidity and mortality. Vitamin A deficiency can cause eye damage and can increase severity of infections such as measles. Iron deficiency can impair cognitive development, stunt growth, and increase morbidity from infectious diseases. Insufficient iodine in the diet can cause mental and neurological disorders in children. Children can receive micronutrients from foods in general, fortified food in particular (such as the use of iodized salt), and through direct supplementation.

Overall, 26 percent of children 6-35 months consumed vitamin A-rich foods such as meat, fish, eggs, carrots, pumpkins and dark green leafy vegetables in the 24 hours preceding the survey. Slightly less than half of all children age 6-59 months (46 percent) were given a vitamin A supplement in the six months before the survey. This represents a decrease from 2000 when 56 percent of children received vitamin A supplements.

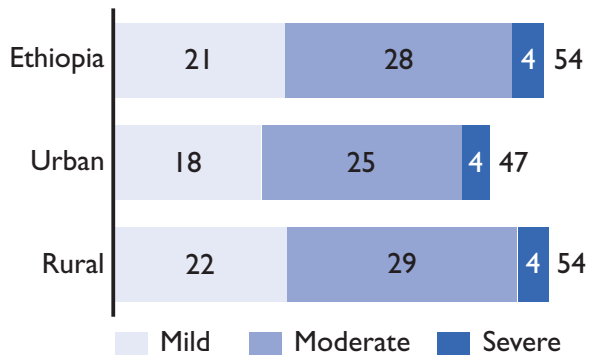
Almost half of children were given a vitamin A supplement in the preceding six months

Children living in the wealthiest households were more likely to have received vitamin A supplements than children in the poorest households (55 percent vs. 40 percent).

In addition, 11 percent of children consumed iron-rich foods, such as meat, fish, poultry and eggs in the 24 hours preceding the survey. About one in five children (19 percent) live in households using adequately iodized salt.

Anaemia is most often caused from an inadequate intake of iron, folate, vitamin B<sub>12</sub> or other nutrients.

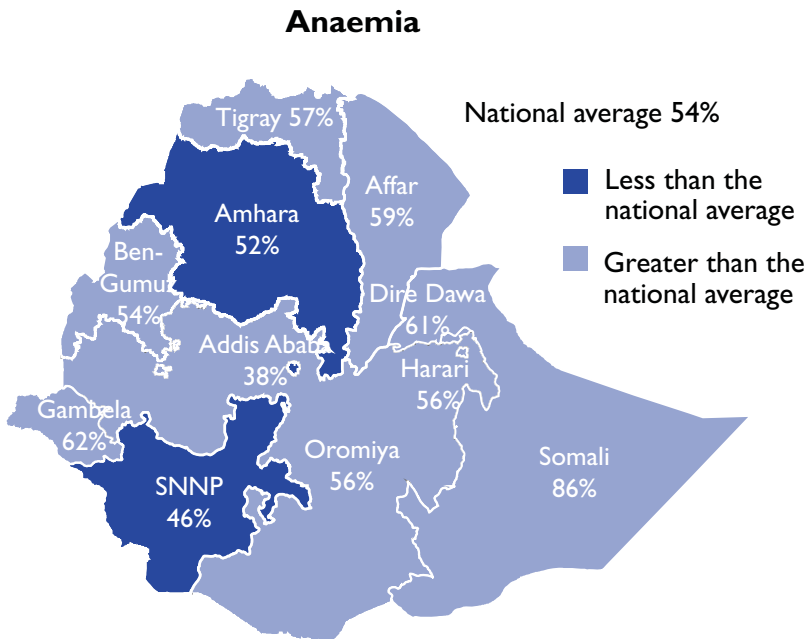
**Prevalence of Anaemia among children age 6-59 months**



Anaemia among children is associated with impaired cognitive performance, motor development, coordination, language development, and scholastic achievement.

More than half of children age 6-59 months are anaemic. While many (21 percent) suffer from mild anaemia, 28 percent of children are moderately anaemic and 4 percent are severely anaemic. Anaemia rates are higher in rural areas than in urban areas.

Anaemia rates are particularly high in the Somali Region, where 86 percent of children suffer from some level of anaemia and over half of children are moderately anaemic.



*Percentage of children age 6-59 months who are anaemic*

# Vaccination

Universal immunization against vaccine-preventable diseases is crucial to reducing infant and child mortality. According to WHO guidelines, children are considered fully vaccinated when they have received a vaccination against tuberculosis (BCG), three doses each of DPT (diphtheria, whooping cough and tetanus) and polio vaccines, and a measles vaccination by the age of 12 months.

One in five children age 12-23 months (20 percent) has received all of the recommended vaccinations. Sixty percent of children had received the BCG vaccination and 35 percent had been vaccinated against measles. While the coverage for the first dose of DPT is relatively high (58 percent), only 32 percent went on to receive the third dose of DPT—a 45 percent dropout. The dropout between the first and third doses of polio is also high (40 percent).

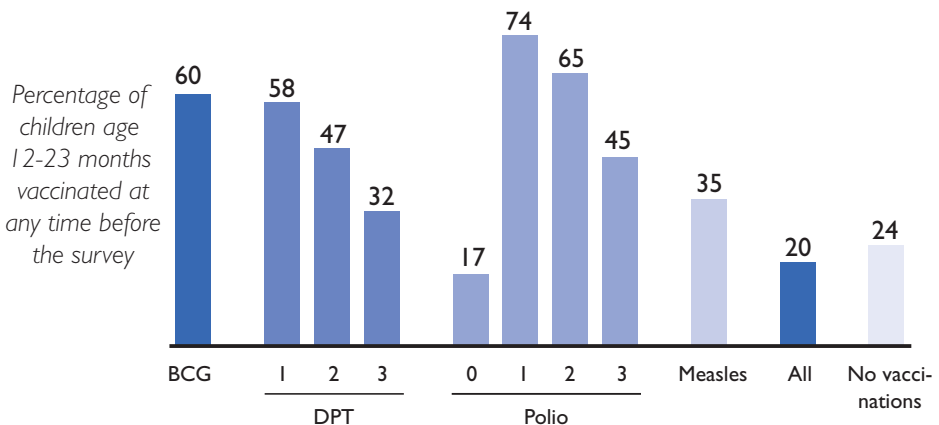
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Only one in five children has been fully vaccinated

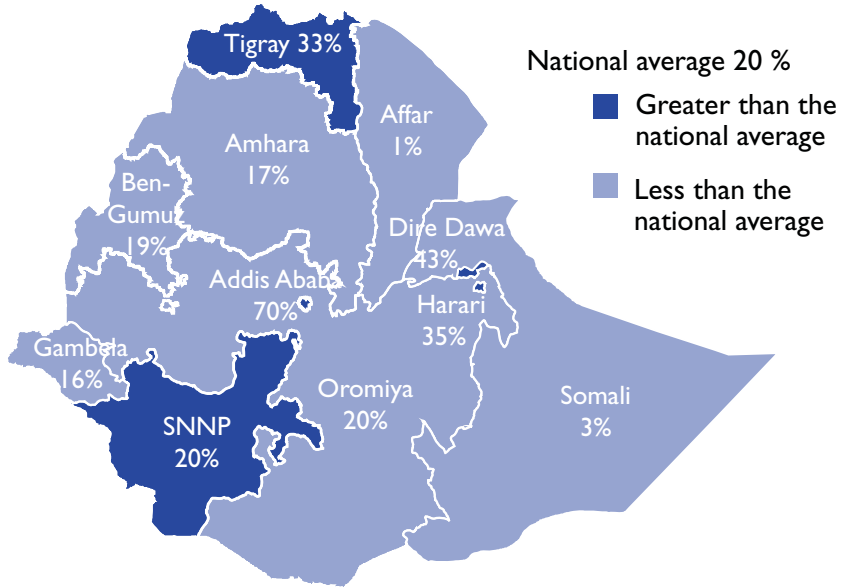
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Although vaccination coverage is low, it has increased by 43 percent since 2000 when only 14 percent of children were fully vaccinated. However, the percentage of children who have received no vaccinations has also increased since 2000, from 17 percent to 24 percent.

## Vaccination Coverage



## Vaccination Coverage by Region



*Percentage of children age 12-23 months who received BCG, measles, and three doses each of DPT and polio vaccines*

There are marked urban-rural differences in vaccination coverage. Children residing in urban areas (49 percent) are almost three times as likely to be fully immunized as children in rural areas (18 percent). More than two-thirds of children (70 percent) in Addis Ababa are fully vaccinated. Vaccination rates are particularly low in the Somali and Affar regions, where 3 percent and less than one percent of children are fully vaccinated, respectively.

Vaccination coverage is significantly lower in Ethiopia than in other countries in the region. For example, one-fifth of Ethiopian children age 12-23 months are fully immunized compared with three-fourths of children in Eritrea and Rwanda.

# Childhood Illnesses

## Diarrhoea

Dehydration caused by severe diarrhoea is a major cause of morbidity and mortality among young children, although the condition can be easily treated. Treatment includes oral rehydration therapy – that is, oral rehydration salt (ORS) packets, recommended home fluids, or an increase in fluids.

One in five children under five years suffered from diarrhoea in the two weeks preceding the survey (18 percent). Diarrhoea is most common among children age 6-23 months.

Among those children sick with diarrhoea, 22 percent were taken to a health provider. Children of mothers with at least a secondary school education are two-and-a-half times as likely to be brought to a health facility than children of mothers with no education (45 percent vs. 19 percent). In addition, children in the wealthiest households are two-and-a-half times as likely to be brought to a health facility than children living in the poorest households (37 percent vs. 14 percent).



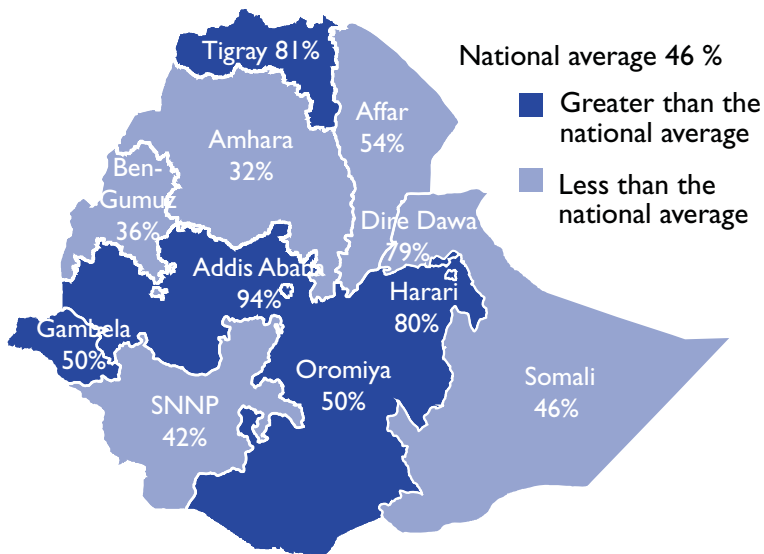
(c) 2001 Harvey Nelson, Courtesy of Photoshare

Less than half of mothers of children under five know to treat diarrhoea using ORS from packets. Knowledge of ORS packets among mothers varies widely throughout the country. Knowledge of ORS packets is high in Addis Ababa, Tigray, Harari, and Dire Dawa, while it is low in Amhara and Benishangul-Gumuz.

Overall, 37 percent of children with diarrhoea were given oral rehydration therapy. Twenty percent of children were treated with ORS from packets, and 19 percent were given recommended home fluids.

Children of mothers with at least a secondary school education are twice as likely to be given oral rehydration therapy as children of mothers with no education (73 percent vs. 34 percent). In addition, children in the wealthiest households are twice as likely to be given oral rehydration therapy as children living in the poorest households (58 percent versus 29 percent).

### Knowledge of ORS packets



*Percentage of mothers who gave birth in the five years preceding the survey who know about ORS packets or pre-packaged liquids for treatment of diarrhoea*

### Acute Respiratory Infection

Symptoms of acute respiratory infection (ARI) – that is, cough accompanied by short rapid breathing which is chest-related, is considered to be a proxy for pneumonia, a major cause of death of young children throughout the world. Early diagnosis and treatment with antibiotics can prevent a large proportion of deaths due to pneumonia.

## Childhood Illnesses, continued

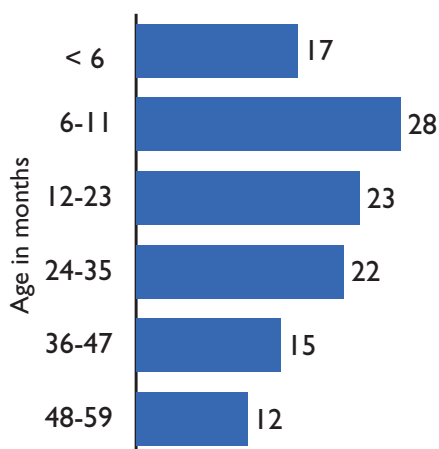
Thirteen percent of children under five years had symptoms of ARI in the two weeks preceding the survey. These symptoms are most common among children age 6-11 months.

Of the children who had symptoms of ARI, 19 percent were taken to a health facility or provider for treatment. However, only 5 percent were given antibiotic drugs. Children living in urban areas were more likely to be taken to a health facility (46 percent) and given antibiotic drugs (11 percent) than those living in rural areas (17 percent and 5 percent, respectively).

### Fever and Malaria

Fever is a major manifestation of malaria and other acute infections in children and contributes to high levels of malnutrition and mortality. Use of insecticide-treated mosquito nets (ITNs) and the prompt diagnosis and treatment of malaria among children under the age of five are important strategies in addressing childhood morbidity and mortality related to malaria.

#### Prevalence of Fever



*Percent of children under 5 with fever in the 2 weeks before the survey*

One in five children under five years had a fever in the two weeks preceding the survey. Fever is most common among children age 6-11 months.

Of the children who had fever, 18 percent were taken to a health facility or provider, 3 percent received antimalarial drugs, and 6 percent were given antibiotic drugs. Children are most likely to be brought to a health facility in Addis Ababa (51 percent) and least likely to be brought to a health facility in the Somali Region (4 percent).



Children of mothers with at least a secondary school education are four times more likely to be brought to a health facility than children of mothers with no education (54 percent vs. 13 percent).

Malaria is a leading public health problem in Ethiopia. Almost 75 percent of the land is malarious and 68 percent of the population is exposed to the risk of malaria. Insecticide treated nets (ITNs) are generally distributed in areas where malaria transmission occurs for more than three months of the year. The ITN distribution system through the public sector gives priority for free distribution to pregnant mothers and children under five years of age in targeted high priority areas.

Overall, just over 2 percent of children slept under a net the night prior to the survey, while less than 2 percent slept under ever-treated nets and ITNs the night prior to the survey.

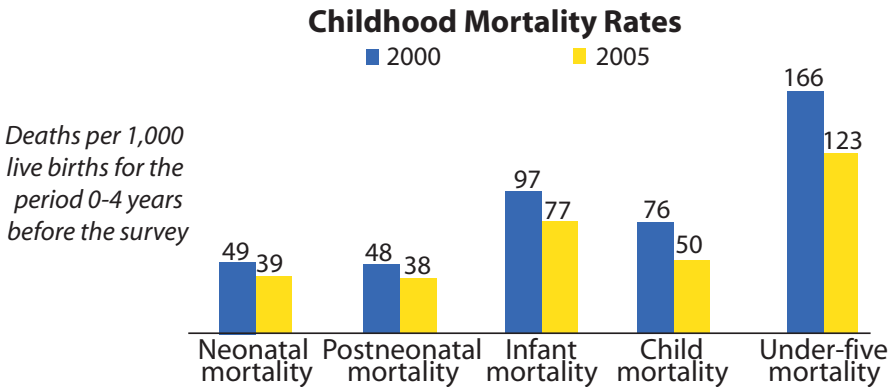
Children in urban areas are almost five times as likely to sleep under a mosquito net (9 percent) as children in rural areas (2 percent). The proportion of children who sleep under any type of mosquito net is highest in Dire Dawa (20 percent), followed by Affar (14 percent) and Gambela (12 percent). It is lowest in Addis Ababa (1 percent).

Children under five years are recognized as one of the most vulnerable groups, and as such, malaria diagnosis and treatment should be given priority. Nevertheless, of the 19 percent of children with fever in the two weeks preceding the survey, only 3 percent took antimalarial drugs and less than 1 percent took the antimalarial drug the same day or the day following the onset of fever. The most common anti-malarial drugs used are SP/Fansidar and chloroquine (about 1 percent each) and quinine (less than 1 percent).

# Childhood Mortality

Childhood mortality rates in general, and infant mortality in particular, are often used as broad indicators of social development or as specific indicators of health status. One of the targets of the Millennium Development Goals is a two-thirds reduction in infant and child mortality by the year 2015. This goal should be achieved through upgrading the proportion of births attended by skilled health personnel, increasing immunization rates, and upgrading the status of women.

Infant mortality in Ethiopia is 77 deaths per 1,000 live births and under-five mortality is 123. This means that one in every thirteen Ethiopian children dies before reaching age one, while one in every eight does not survive to the fifth birthday. Both infant and under-five mortality rates have dropped significantly since 2000 when 97 infants and 166 children under-five died for every 1,000 births.

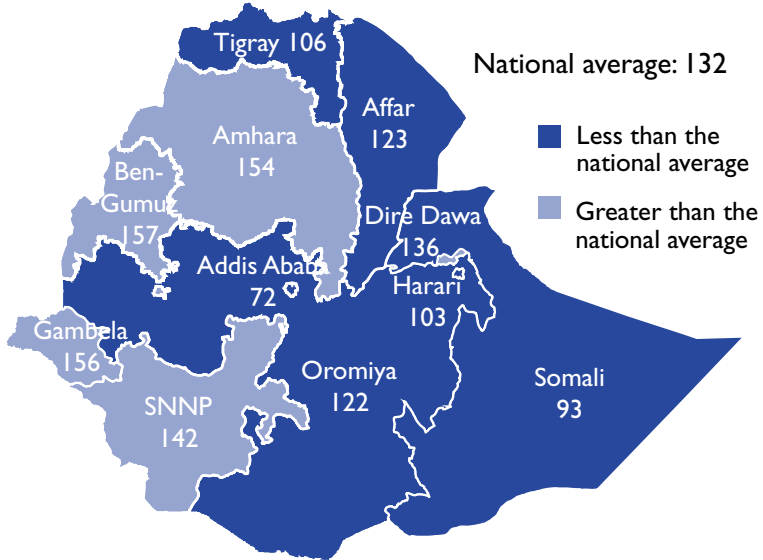


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One out of every eight children does not survive to their fifth birthday

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## Under-Five Mortality



*Under-five mortality for the 10-year period preceding the survey*

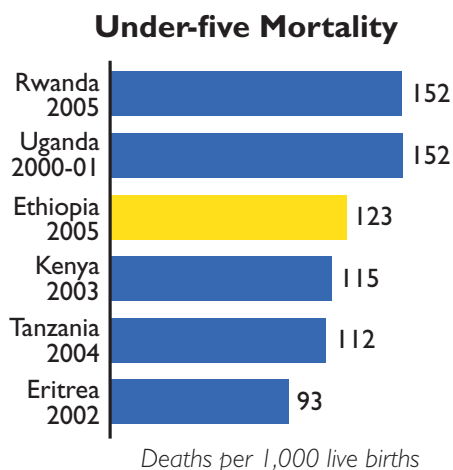
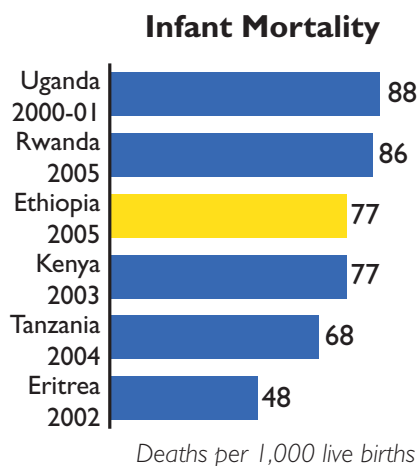
Wide regional differentials in infant and under-five mortality are seen. For example, infant mortality rates range from a low of 45 deaths per 1,000 live births in Addis Ababa to a high of 94 per 1,000 in Amhara. Under-five mortality ranges from a low of 72 per 1,000 live births in Addis Ababa to a high of 157 in Benishangul-Gumuz.

## Childhood Mortality, continued

Under-five mortality among children born to mothers with no education (139 per 1,000 live births) is more than twice that of children born to mothers with secondary or higher education (54 per 1,000 live births). The data reconfirm that mother's education has a positive impact on child's health.

Short birth intervals also significantly reduce a child's chance of survival. A child born within two years of a preceding birth is almost three times as likely to die within the first year of life as a child born three or more years after an older sibling.

When compared with other countries in the region with comparable data, Ethiopia is somewhere in the middle in terms of child mortality. Ethiopian children face an equal risk of dying by their first birthday as Kenyan children. However, Ethiopian children are much less likely to die in childhood than children in Uganda and Rwanda, but more likely to die before age five than children in Tanzania and Eritrea.



## Conclusions

The reduction in infant and under-five mortality between 2000 and 2005 marks a significant accomplishment for Ethiopia. But there is still much room for continued improvement.

Ethiopian children continue to suffer from malnutrition. Almost half are stunted, or chronically malnourished. More than one-third are underweight. More than half suffer from some level of iron-deficiency anaemia, and many do not receive appropriate levels of vitamin A or iodine. Vitamin supplementation and household salt iodization are simple interventions to improve children's micronutrient intake, and yet less than half of children received vitamin A supplements and only about one in five live in households with adequately iodized salt.

Vaccine-preventable illnesses are major causes of childhood death, and yet only 20 percent of Ethiopian children are fully vaccinated. Although this is still the lowest rate in the region, it represents a significant improvement over the last five years. Continued improvement in vaccination coverage, especially in the most needy regions, will have a tremendous impact on reducing childhood morbidity and mortality.

Children inevitably get sick. Receiving timely and appropriate treatment during illness, however, can determine the long-term health of a child. Very few children with diarrhoea, ARI, or fever were taken to a health provider. Just over one-third of children with diarrhoea were treated with oral rehydration therapy, a simple and inexpensive intervention to treat dehydration. Few children with ARI were treated with antibiotics, and treatment of fever with antimalarials was also very rare. Diarrhoea, ARI, and fever are not always preventable, but effective, affordable, accessible treatment options are necessary in order to maintain the health of children.

Malaria continues to be a risk to young children. Although three-quarters of Ethiopia is malarious, only 2 percent of children slept under a mosquito net the night before the survey. Of the children who had a fever, the primary symptom of malaria, only 3 percent were treated with an antimalarial. Until prevention and treatment of malaria is expanded, children will continue to suffer from this disease, and its impact on children's mortality will be significant.





