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## *Global Update*

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### **Reducing Mortality From Major Childhood Killer Diseases**

Seven out of 10 childhood deaths in developing countries can be attributed to just five main causes, or a combination of them: pneumonia, diarrhea, measles, malaria and malnutrition. Around the world, three out of every four children who seek health care are suffering from at least one of these conditions. Many of these deaths can, however, be prevented by better health management: WHO recommends the Integrated Management of Childhood Illness (IMCI) approach.

#### **The Integrated Management of Childhood Illnesses (IMCI)**

It is apparent that sick children's signs and symptoms may overlap. Recognizing, consequently, which condition is present can be difficult and a single diagnosis is often inappropriate. Treatment of the sick child may also be complicated by the need to combine therapies for several conditions. The situation calls for child health programmes which address the sick child as a whole.

Integrated management has several key advantages. It leads to more accurate diagnoses in outpatient settings; ensures more appropriate and, where possible, combined treatment of major illnesses; and speeds referral of severely ill children. The approach gives due attention both to treatment of childhood disease as well as to prevention, emphasizing immunization, Vitamin A supplementation if needed, and improved

infant feeding, including exclusive breast-feeding.

Integrated management of the sick child allows for greater efficiency in training and in the supervision and management of outpatient health facilities. It reduces wastage of resources such as intravenous fluids and antibiotics by treating sick children with the most cost-effective intervention for their condition. The approach also avoids the duplication of effort that may occur in a series of separate disease control programmes.

#### **Pneumonia**

*The problem:* Acute respiratory infection (ARI) is the leading cause of death in children under five, killing over two million children annually. Up to 40% of children seen in health clinics are suffering from ARI and many deaths attributed to other causes are, in fact, "hidden" ARI deaths. In most cases, pneumonia can be effectively treated with low-cost oral antibiotics. The problem is that children die very quickly from the infection and need treatment urgently.

*IMCI solution:* Health workers following the IMCI approach learn the importance of classifying the severity of respiratory infections by observing the child for two key signs of pneumonia—chest indrawing and fast breathing. They are also aware that children suffering from other conditions, such as malnutrition or measles, are particularly susceptible to pneumonia, and thus they are on the lookout for the early signs of the disease to ensure rapid treatment.

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## Diarrhea

*The problem:* Over 2 million children die each year in developing countries from diarrheal diseases. The illness can be caused by a wide variety of infections, in particular due to the consumption of contaminated food and water.

*IMCI solution:* IMCI emphasizes determining the duration of the diarrhea, assessing the severity of dehydration and the presence of blood in stools in order to categorize the type of diarrhea and propose appropriate treatment.

Health workers are trained to recognize the three main types of diarrhea (*Table I*):

1. Acute watery diarrhea is the most common form and the most easily treated. It may cause dehydration which can usually be avoided by giving extra fluids and food with a little extra salt. Oral rehydration salts solution can safely correct dehydration without the need for intravenous therapy in all but the most severe cases.
2. Dysentery is diagnosed by the presence of blood in the stools and is treated with antibiotics.
3. Persistent diarrhea is defined as an episode that lasts for more than 14 days. It is a major cause of malnutrition but it can usually be treated by dietary management, supplements of minerals and vitamins and the treatment of co-existing infections.

While urgent diagnosis and treatment of diarrhea may be a priority for saving the life of a child, IMCI-trained health workers also consider the child's overall health status. For example, by treating the malnutrition that often accompanies diarrhea, further risk to the child's health can be reduced. Increasing vigilance to detect other diseases that can occur concurrently with diarrhea, such as measles or malaria, is also emphasized.

## Measles

*The Problem:* Despite the major impact made on this disease by successful immunization programmes, measles infects over 40 million children and kills over 800,000 under-fives each year. That translate to 2,000 deaths of young children every day from measles, often in association with diarrhea and pneumonia.

*IMCI Solution:* Young children with measles often develop acute respiratory infections, diarrhea and malnutrition, and children who survive measles are more vulnerable to other dangerous infections for several months afterwards. Trained health workers learn to recognize the complications of measles that they can treat and those that need rapid referral for more specialized treatment.

## Malaria

*The problem:* Nearly 600,000 children die of

**TABLE I—The Three Main Types of Diarrhea**

Type of diarrhea	% of all cases of childhood diarrhea	% of all deaths due to childhood diarrhea	% of deaths preventable by standard case management
Acute watery	80	50	100
Dysentery	10	15	80
Persistent	10	35	80
<b>Total</b>	<b>100</b>	<b>100</b>	<b>90</b>

malaria each year, most of them in sub-Saharan Africa. Young children are particularly vulnerable because they have not developed the partial immunity that results from surviving repeated infections. Malaria is a widespread tropical disease caused by a parasite transmitted to humans by mosquitoes. It has proved difficult to control because mosquitoes have become resistant to insecticides used against them and because the parasite has developed resistance in some areas to the cheap and effective drugs that used to provide good protection. However, alternative drug therapies have been developed for use in areas of resistance.

*IMCI solution:* Children with malaria can in most cases be quickly and effectively treated with a course of inexpensive oral tablets. But because fever may be the only sign of malaria, it may be difficult to distinguish it from other potentially life-threatening conditions. IMCI enables health worker to make more accurate assessments of children with fever, providing them with the treatment they need and avoiding excessive use of drugs.

### **Malnutrition**

*The problem:* Although malnutrition is rarely listed as the direct cause, it contributes to more than half of all childhood deaths. Lack of access to food is not the only cause of malnutrition. Poor feeding practices and infection, or a combination of the two, are both major factors. Infection, particularly frequent or persistent diarrhea, pneumonia, measles and malaria, undermines nutritional status. Poor feeding practices-inadequate breastfeeding, offering the wrong foods in insufficient quantities and without ensuring that the child eats his/her share-contribute to malnutrition. Malnourished children are, in turn, more vulnerable to disease.

*IMCI solution:* IMCI-trained health workers check the nutritional status and feeding practices of every child they see. They counsel parents on the correct foods for each age-group and help them overcome various feeding problems. They are able to assess a mother breastfeeding her child and to correct any problems.

### **Improving Family Practices**

An important element of IMCI is the encouragement of a healthier home life. Good feeding practices, immunization, improved hygiene and the healthy development of children will all reduce child mortality rates. Achievement of better living conditions begins with the parents.

Through IMCI, health workers counsel parents on how to improve care for their sick children. Workers teach them how to administer drugs to combat pneumonia, how to follow the three rules of home care for diarrhea-increase fluids, continue feeding and recognize the danger signs that mean their child needs further treatment in a health facility-how to care for children afflicted by measles and how to protect their children from malaria by using insecticide-impregnated bednets.

Many children die because their parents do not recognize danger signs indicating that they might be suffering from one of the above conditions or any other illness. IMCI-trained health workers work with parents to ensure they recognize the signals and get their sick children promptly to a person capable of giving specialized care.

Changing family habits and the kinds of food offered to children is an important element of IMCI. An effective way of doing this is through talking to mothers individually about home care and their child's feeding difficulties, and finding solutions that would be feasible for them to adopt. Where

appropriate, IMCI-trained health workers advise on the best ways of ensuring young children get the nourishment they need for healthy growth and development. Quite simple changes can make all the difference. Helping a toddler to eat, for example, rather than leaving him/herself from the family dish, can greatly increase the amount of food he/she actually consumes.

### **The Special Importance of Breastfeeding**

Breastfeeding plays an essential and sometimes underestimated role in the treatment and prevention of childhood illness. As many as 10% of all deaths of children under five could be prevented by a modest increase in breastfeeding rates worldwide. For this reason, promotion and support of breastfeeding is a key feature of IMCI.

When mothers breastfeed exclusively during at least the first four months and, if possible, six months of life, there is a dramatic decrease in episodes of diarrhea and, to a lesser extent, respiratory infections. Even small amounts of water-based drinks decrease breastmilk intake and weight gain, and increase the risk of diarrhea. Continuing to breastfeed up to two years of age, besides giving complementary foods, maintains good nutritional status and helps prevent diarrhea.

There is, however, evidence that the duration of breastfeeding worldwide is decreasing. In Zambia, for example, there has been a steady increase in bottle feeding since the 1970s. During the period 1977-1992, the infant mortality rate has increased by 35%.

Mothers often give their babies other food and fluids before six months because they doubt their breastmilk supply is adequate and they do not know how to improve the situation. IMCI recommends one-on-one counselling with mothers on breastfeeding techniques and benefits. WHO

has developed courses in breastfeeding counselling for health care providers. Moreover, whenever a sick young child is taken to a clinic or health facility, the IMCI-trained health worker enquires about and assesses breastfeeding and provides the help and support needed to solve most common difficulties, while referring more serious problems to specialists.

The recommended tips for feeding a child are depicted in *Table II*.

### **Other Prevention Activities**

Prevention is an important part of IMCI

**TABLE II- WHO's Tips for Feeding Your Child**

- Breastfeed your child. Give only breastmilk up to at least the age of 4 months and, if possible, up to 6 months.  
Giving only breastmilk (no other food or fluids, even water) helps to protect your child against sickness. Most mothers have enough breastmilk. By feeding your child frequently and for longer periods, you can increase the amount of breastmilk.
- When your child is 6 months old, begin to offer other foods.  
Thick cereal, meat, fish, eggs, beans, fruits and vegetables will give your child energy and will help your child to grow.
- Continue to breastfeed up to the age of two years-as often as your child wants.  
Even when you give other foods, breastfeeding will help to protect your child against sickness.
- Feed your child actively.  
Sit with and encourage your child to eat. Put your child's serving in a separate plate or bowl to ensure that he or she has an adequate share of the family food.
- If your child is sick:
  - Breastfeed more often.
  - if your child has started eating other foods, offer food more often, in small amounts, and give plenty to drink.

and a key to further reduction in the levels of child mortality. Vaccination, for example, is a major means of prevention. IMCI-trained health workers use every contact with a child to check and increase vaccination and immunization coverage.

In recent trials in the Gambia, vaccination provided 100% protection against pneumonia due to *Haemophilus influenzae* type b, the second most common cause of the disease. Other vaccines, against the very common pneumococcus infection, are also being tested.

The best protection against measles is also immunization. In addition, Vitamin A supplements have been found to reduce the severity of both measles and diarrhea: trial in developing countries have shown that Vitamin A supplements can reduce death from these and other infectious diseases by almost 25%.

Use of insecticide-impregnated bednets can reduce deaths from malaria and trials in several countries have shown an overall reduction in childhood death rates of 35%.