International Child Health

– secondary publication

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ABSTRACT

International child health has improved. Better healthcare strategies, like IMCI, have contributed implementing basic interventions: vaccinations, nutrition supplement, oral rehydration and antibiotics. But 11 million children still die every year before they turn five, most from infectious diseases and neonatal complications, over half associated with malnutrition. Conditions we could prevent and treat. One of UN´s Millennium Development Goals is to reduce child mortality. However child health is more than mortality and morbidity indicators, it includes growth and development.

"We strive towards the day when nations will be judged not by their military or economic strength, nor by the splendour of their capital cities and public buildings, but by the well-being of their children" UNICEF [1].

Child health has improved globally. But this year 11 million die before they turn five years; most from diseases we could prevent or treat. Of the global burden of diseases, children carry half, the vast majority living in developing countries and the most important cause of disease is infections, often associated with malnutrition.

But child health is more than survival and absence of sickness; it also implies possibility of growth and development with care and protection as fundamental conditions. Natural catastrophes, armed conflicts and abuse leave several hundred million children all over the world without that foundation.

For many children health is a matter of survival in the first place and since infants have the highest mortality rate [2] this article focusses on global morbidity and mortality among children under five years and the future prospects in accordance with UN's millennium development goals.

DEVELOPMENT GOALS FOR THE MILLENNIUM

At the start of the new millennium, the UN launched a number of development goals for 2015 (Millennium Development Goals) as the most comprehensive commitment in history of the international community to fight global poverty and sickness. One of the eight goals is to reduce mortality among children under five years (*under five mortality rate*, U5MR) by two thirds from 1990 to 2015. In 2002 one in twelve children died before turning five years. If the present trend continues, UNICEF estimates that the goal is not reached, but U5MR is only reduced by a fourth [1].

CHILD MORTALITY

Of the children dying before five years of age 75% are African or Asian (Figure 1). Though most of the diseases can be prevented or treated rather easily, the causes of death remain the same as 50 years ago; the most common causes are still pneumonia (19%), diarrhea (18%), malaria (8%), measles (4%), neonatal pneumonia/sepsis (10%) and pre term birth/asphyxia (10%). In more than half of the cases malnutrition is associated (53%) [3]. But fewer children die – U5MR has halved in the period 1960-2000 to 11 million yearly [1]. To compare 1.7 million adolescent die every year (10-19 years of age, major causes are accidents, sexually transmitted diseases and pregnancy related complications).

Important explanations to the fall in U5MR includes improved healthcare systems including basic interventions such as use of antibiotics, oral rehydration, micronutrients and vaccinations often in an integrated approach targeting the most common co morbidity in Integrated Management of Childhood Illness (IMCI).

INEQUITY

It is the poor children who get sick and the poor children who die – they are more vulnerable in all ways: more exposed, less resistant and receive less effective or no treatment.

The risk factors are queuing up: low birth weight (insufficient maternal diet, infections and short birth space), poor living conditions (crowding, no water/sanitation and pollution), exposure to disease vectors and malnutrition (helminths and malabsorption after infectious diarrhea). Further poor coverage of preventive interventions (vaccination, micronutrients and bed nets) and treatment – it takes knowledge, transport, competent staff and accessible medicine to reach a clinic and get the right treatment [4].

Correspondingly child mortality is unequally distributed in the world (Figure 1): U5MR in Sub Saharan Africa is 29 times the U5MR in developed countries (174 of 1000 compared to 6 of 1000) and 90% of the deaths are concentrated in 42 countries [1, 5]. Also within the countries the differences are striking, children in the countryside and city slums are the poorest and thus the most vulnerable [4].

NEONATOLOGY NEGLECTED

In the neonatal period (the first four weeks) four million babies die (estimated since many are not formally recorded), almost all in the developing countries, where improvements are scarce during the latest decade. The massive research and subsequent improvements have concentrated on the one percentage of the neonatal deaths occurring in the developed countries. However, almost every second baby is born without a skilled birth attendant [6].

The major causes of death are infections (26%), pre term birth (28%), asphyxia (23%), tetanus (7%) and congenital malformations (8%). The risk increases with low birth weight, maternal complications and poverty. Sixteen feasible interventions estimated to be able to prevent 70% of neonatal deaths have been identified. Since 2003 WHO and UNICEF have prioritized neonatology in IMCI and a number of other programs concerning pregnancy and childhood.

INFECTIOUS DISEASES DOMINATE

Infectious diseases are still dominating the causes of morbidity and mortality among children globally. Well known, effective and affordable interventions exist but coverage is insufficient [7, 8]. The treatment of diarrhea is still oral rehydration and zinc for dysentery

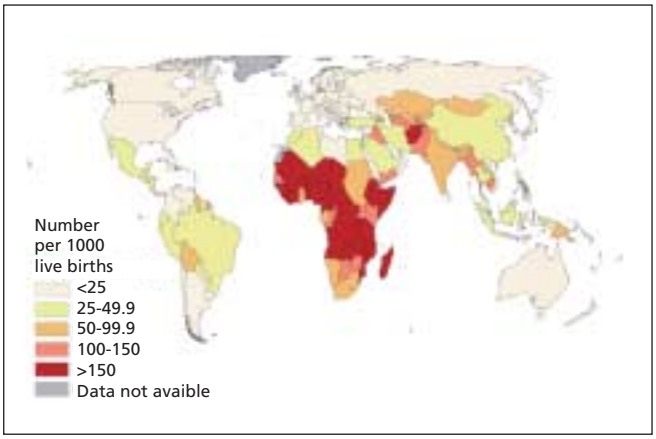

Figure 1. Under 5 years mortality rate, 2003. World Health Statistics 2005, WHO.

Fact box

Child health is more than survival and absence of sickness. It also includes protection, care and possibility of growth and development.

International child health gaps between rich and poor.

11 million children die before they turn five years old

The major causes of death are diarrhea, pneumonia, measles, malaria and neonatal complications. More than half are associated with malnutrition.

Most causes are preventable or treatable quiet simple.

One of UN's Millennium Development Goals is to reduce under five mortality by two thirds before 2015.

and antibiotics for bacterial pneumonia. As prophylaxes breastfeeding, complementary feeding, zinc, vitamin A and hygiene are still important [7]. But the coverage of the interventions is low [7, 8]. The number of malaria cases is rising, and particularly for infants and pregnant women, who have high mortality rates among the 500 million clinical cases yearly. No vaccine is available, but impregnated bed nets can prevent malaria, however the coverage is below 5% in several malaria areas [7]. The treatment has changed to artemisinine combination therapy in many countries because of widespread resistance. 1-2 million children die of malaria every year, most in Africa. Further the morbidity caused by repeated infections in endemic areas is considerable, causing among others anemia and compromised development.

Today 2.5 million children are infected with HIV, the vast majority in developing countries transmitted by their mothers vertically during pregnancy/birth or breastfeeding.

More than half die before their second birthday. Prophylaxis includes antiretroviral treatment during labor and possibly during pregnancy and formula. However breastfeeding prevents other infections and formula feeding can be difficult to implement because of hygiene, finance and stigmata, hence the balance is difficult. Like for adults the treatment is antiretroviral, management of secondary infections and sufficient diet. Even though mortality among children is high, only one out of 30 HIV-infected children are on antiretroviral treatment. Children are vulnerable to the HIV endemic in a double sense: besides the infected children, eight million have lost one or both parents to the pandemic.

VACCINE SUCCESS

Vaccinations to prevent infectious diseases are one of the biggest achievements in improving international child health. The basic global vaccination program (Expanded Program on Immunization, EPI) was launched in 1974 and includes *bacille Calmette-Guérin* (BCG) (× 1), difteri-pertussis-tetanus (× 3), oral polio (× 4), measles (× 1-2) before one year of age. Further hepatitis B (× 3), yellow fever (× 1) and *Haemophilus influenzae* type B (× 3) depending on national conditions (rota- and pneumococ vaccine are not included yet). Today the estimated coverage of EPI is 80% of the world's children, preventing one million deaths yearly. Further 1.4 million deaths could be prevented by full coverage [9]. Internationally especially the fight against measles, polio and tetanus has been determined and shown results; deaths caused by measles has been halved in five years to 500,000 deaths yearly, polio is almost eradicated to less than 500 cases and neonatal deaths because of tetanus are reduced to less than 10% (70.000) since 1980.

SIX MILLION CHILDREN CAN BE SAVED THIS YEAR

According to a group of international experts 23 identified interventions can by universal coverage in the 42 countries accounting for 90% of deaths prevent 63% of the deaths. Breastfeeding, impregnated bed nets, oral rehydration, micronutrients, labor hygiene and vaccination could prevent 50% of the deaths.

The cost of preventing about two thirds of the deaths and save six million children every year is estimated to 5.1 billion USD, corresponding to mean 887 USD per saved life [5].

INTEGRATED PROPHYLAXIS AND TREATMENT

IMCI – launched by WHO and UNICEF in the mid 1990's – is a strategy developed to an integrated management approach of the sick child. IMCI focus on the most common diseases and their comorbidity among children under five years: pneumonia, diarrhea, malaria, measles and malnutrition. New areas are neonatology and HIV/AIDS. The program includes case management focusing on the symptoms presented, nutrition (breastfeeding, minerals, vitamins, oral rehydration etc.), vaccination, growth and development. The goal is to reduce morbidity and mortality by improved performance in the family, local society and primary health sector. The family learns about prevention, management of diseases at home and symptoms demanding consultation. The health staff learns to manage the sick child using flow charts including simple questions and few observations in order to diagnose and treat fast and effectively [2]. As an example pneumonia is diagnosed according to general appearance, retractions and respiration frequency. The family is questioned about fever, diarrhea, nutrition, anemia and vaccination according to similar flow charts. Antibiotic is started, care, observations, follow-up and preventive interventions are discussed. The IMCI strategy is locally adapted, as an example the fever flow chat is adapted to the prevalence of malaria and dengue fever. IMCI also includes improved healthcare systems, in order to improve for example drug supply and patient transfer. The IMCI strategy is introduced in more than 100 countries, according to an analysis of five countries IMCI improves the quality of care and does it cost-effective [10].

CONCLUSION

Child health has increased globally. Improved health strategies, including IMCI, implementing basic interventions as vaccination, micronutrients, oral dehydration and antibiotics have contributed. But 11 million children still die every year before they turn five years. Most of malnutrition and a handful of infectious diseases we could prevent or treat efficiently quite simple. There are major geographical differences and poverty is an important risk factor. One of UN's developmental goals is the promise of reducing child mortality significantly, which demands commitment, finance, competent human resources and adapted healthcare systems. But child health is more than survival and absence of sickness; it includes care, growth and development. (Box 1)

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The article is written on a wider research of literature. A complete list of literature can be obtained from the authors.

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